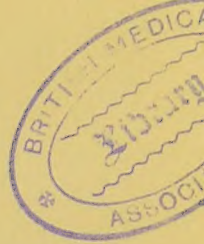




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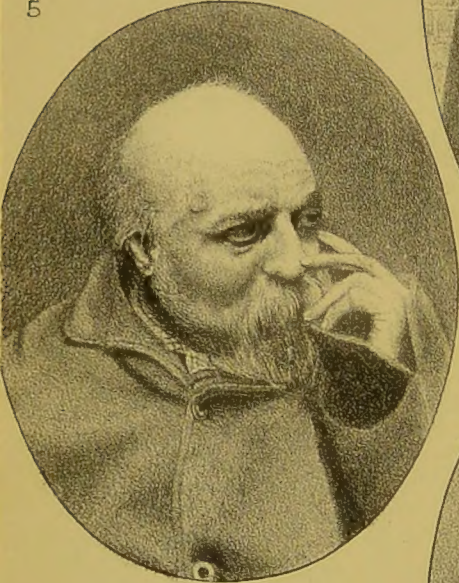
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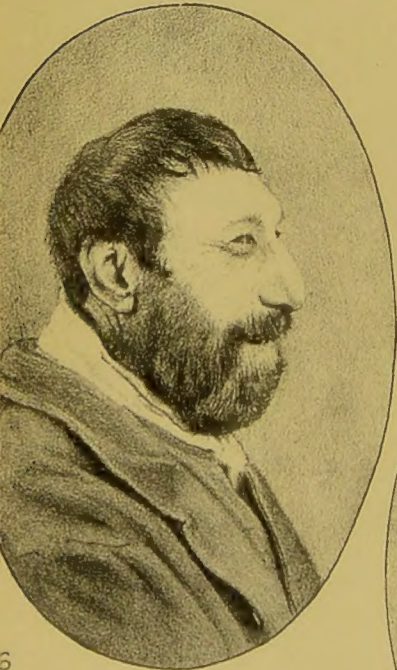
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A DICTIONARY

OF

PSYCHOLOGICAL MEDICINE

*GIVING THE DEFINITION, ETYMOLOGY AND SYNONYMS
OF THE TERMS USED IN MEDICAL PSYCHOLOGY*

WITH THE

SYMPTOMS, TREATMENT, AND PATHOLOGY OF INSANITY

AND THE

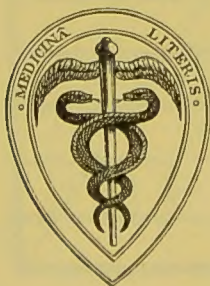
LAW OF LUNACY IN GREAT BRITAIN AND IRELAND

EDITED BY

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VOL. I.



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Dedicated to

JOHN CHARLES BUCKNILL, M.D. LOND.

F.R.C.P., F.R.S.

LATE LORD CHANCELLOR'S VISITOR IN LUNACY

FIRST EDITOR OF THE "JOURNAL OF MENTAL SCIENCE," AND AN

EARLY AND STRENUOUS WORKER IN THE FIELD

OF PSYCHOLOGICAL MEDICINE



P R E F A C E.

THIS Work, the first of the kind which has been attempted, aims at providing information, more or less systematic, in regard to the Definition, Etymology and Synonyms of the Terms used in Medical Psychology, with the Symptoms, Treatment, and Pathology of Insanity, together with an abstract of the Law of Lunacy in Great Britain and Ireland.

A large number of short Definitions of words have been introduced.

Articles of greater length treat of the various Forms of Mental Disorder and the most important subjects which fall under Psychological Medicine.

The Philosophy of Mind is expounded in a separate Introductory Article, and is not lost sight of in the Shorter Definitions and other Articles; but it is to be borne in mind that the fundamental aim of the Dictionary is directed to Morbid Psychology, and not to Mental Science in its ordinary restricted sense.

An account is given of the methods of Psycho-Physical Research which have been introduced in recent times into Psychological Laboratories established in various Universities in Europe and in the United States; also of the results which have been reached in regard to the Reaction-time of Mental Phenomena.

The History of the Insane, and the reforms undertaken to ameliorate their condition in various countries of the world, have been fully given.

An important feature of the Dictionary is the introduction of Bibliographical References (Foreign and English) in connection with the most important Articles; and, in addition to these, a copious Bibliography of English Psychological Medicine will be found at the close of the Work.

Illustrations of the various Types of Insanity are given, and, in addition, Engravings intended to facilitate the understanding of other subjects described in the Dictionary.

The study of Psychological Medicine has been so greatly extended in recent years at home and abroad, that a literature has sprung up of alarming dimensions, containing a record of a vast number of clinical observations, ingenious theories, and, as a necessary consequence, the coinage of a multitude of terms. It is open to question whether the relative amounts of the tares and the wheat are in exactly the proportion we should desire, but it is not open to question whether the Medical Psychologist stands in need of a work of reference to which he can refer for information. That any such work can be complete is too much to expect. In the present instance there must necessarily be some

omissions. The Editor is only too conscious of its imperfections, but ventures to believe that, in spite of these defects, this Dictionary will prove a great assistance to those engaged in the study or practice of Mental Medicine.

Without having the presumption to suggest a comparison between the present work and Johnson's Dictionary, the Editor may perhaps be forgiven if he says, with the great lexicographer, that "while a few wild blunders, and risible absurdities, from which no work of such multiplicity was ever free, may for a time furnish folly with laughter, and harden ignorance into contempt . . . I look with pleasure on my book, however defective, and deliver it to the world with the spirit of a man that has endeavoured well."

It remains to acknowledge the assistance the Editor has received in the preparation of this work.

First and foremost, he has to thank the Contributors themselves, not only for their willingness to write, and the value of their Articles, but for their considerate patience in regard to the period which has elapsed between the composition and the publication of their productions. To some he is under special obligation for their counsel and encouragement, and to none more than to Dr. Urquhart (Perth), who has also prepared the Medico-psychological Bibliography, which cannot fail to be of great utility.

Dr. Pietersen (Ashwood House, Kingswinford) is mainly responsible for the Short Definitions and Etymologies of terms from A to M inclusive, and has rendered valuable service in many ways. To Dr. Willoughby, of Plymouth, the Editor's acknowledgments are due for having undertaken much of the corresponding labour for the remainder of the alphabet. Their labours and the Editor's have been sensibly lightened by the Lexicon of the New Sydenham Society,* in regard to words common to the two Dictionaries, occurring under the letters A to M, beyond which the former work has not up to the present time been issued. For the privilege to make free use of this valuable publication provided a general acknowledgment of indebtedness were given, the Editor expresses his cordial thanks to the Council of the New Sydenham Society and the Editors.

The translations of the Foreign contributions have with few exceptions been made by Mr. Ernest Fricke, a Demonstrator of Physiology at the Charing Cross Hospital Medical School, to whom the Editor is indebted for valuable help in other ways.

The large majority of the proofs have been carefully revised by Mrs. Stanley Boyd, M.D., who has thereby saved the Editor from some at least of "the risible absurdities" to which Johnson alludes.

THE EDITOR.

LYNDON LODGE, HANWELL, W.

June 28, 1892.

* "The New Sydenham Society's Lexicon of Medicine and the Allied Sciences (Based on Mayne's Lexicon)." By Henry Power, M.B., and Leonard W. Sedgwick, M.D.



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CORRIGENDA AND ADDENDA.

Page	26	line 22, for "Therapeutics" read TREATMENT.
"	56 col. 2	", 25, for γόνος read μόνος.
"	83 "	", 2 ", 45, for χόνδρος read χόνδρος.
"	121 "	", 1 ", 38, for Robinson read Robertson.
"	124 "	", 1 ", 5, for Houghton read Haughton.
"	142 "	", 1 ", 32, for Kennaway read Kennoway.
"	142 "	", 1 ", 34, for Balfren read Balfrou.
"	179 "	", 2 ", 47, for F. Duncan Greenlees read T. Duncan Greenlees.
"	313 "	", 2 ", 6, for Homicidal read Homicide.
"	328 "	", 1 to last line add and resulting in dumbness.
"	355 "	", 1 ", 29, for marked epilepsy read masked epilepsy.
"	389 "	", 1 ", 59, for normal read moral.
"	412 "	", 2 ", 14, for ἐργηγόσεως read ἐργηγόρσεως.
"	432 "	", 1 ", 53, for ἐμπρημός read ἐμπρησμός.
"	457 "	", 2 ", 46, for twod istinct read two distinct.
"	511 "	", 1 ", 63, for Pinel's son read Pinel's nephew.
"	551 "	", 2 ", 2, for disease read diseases.
"	551 "	", 2 ", 42, for PROCEDURE read PLEAD.
"	553 "	", 1 ", 47, for ελαφηβολιών read ἐλαφηβολιών.
"	599 "	", 1 ", 28, for Colin read Collin.
"	610 "	", 1 ", 39, for Catheléneau read Cathelineau.
"	691 "	", 2 ", 40, for nerve tissue; must read nerve tissue must.
"	694 "	", 1 ", 6, for in addition read in relation.
"	696 "	", 1 ", 8, for Ikato read Ikota.
"	725 "	", 2 ", 37, for repeats read repeat.
"	731 "	", 2 ", 22, for twice read once.
"	753 "	", 1 ", 26, for traduecer read traducere.
"	753 "	", 2 ", 1, for psyedopathy read psychopathy.
"	755 "	", 1 ", 29, for μαχλωής read μαχλότης.
"	760 "	", 1 ", 5, for excitement.) read excitement.
"	774 "	", 2 ", 55, for Irrenhaus manicomio read Irrenhaus; Ital. manicomio.
"	783 "	", 2 ", 61, add Cf. Yarrow v. Yarrow (1892, P. 92.) and Hanbury v. Hanbury (not yet officially reported. <i>Journal of Mental Science</i> , July 1892).
"	813 "	", 2 ", 45, for Communicative read Communicated.
"	816 "	", 2 lines 6 and 8, for pozzia read pazzia.
"	861 "	", 1 line 37, for hospital read hospitals.
"	862 "	", 1 ", 35, for McLean Asylum read McLean Asylum School.
"	862 "	", 1 ", 38, for classes, exercises read in class-exercises.
"	862 "	", 1 ", 52, for Essex Asylum read Essex Co. Asylum, New Jersey.
"	862 "	", 1 ", 53, for Hampshire read New Hampshire.
"	862 "	", 2 ", 30, for complimentary read complementary.
"	1077 "	", 2 ", 29, for ostensible, read ostentatious.
"	1257 "	", 1 ", 46, for Syphilitic read Syphilis.
"	1301 "	", 1 ", 5, for Clark read Clarke.

Page 961, col. 2, lines 11 and 12, *instead of* and this statement was taken as a plea of guilty *read* and when formally called upon to plead she pleaded guilty.

Page 961, col. 2, lines 27-34, *instead of* and then, after she had been called on to plead and had persisted in saying that she had "hit" and that she "had killed the old woman," it was decided that it would not have been right to go back to the consideration of the question of whether or not the prisoner ought to have been called upon to plead *read* but, after she had been called upon to plead and had pleaded guilty, a jury was specially impanelled to try whether she was, or was not, in a fit state of mind to plead; and, upon this point, the finding of the jury was in the following terms:—"We believe the prisoner to be of such a state of mind as to be able to understand the plea." And, after this finding of the jury, the prisoner was again formally called upon to plead, and she again pleaded guilty. (For a full report of the trial *see* the *East Anglian Daily Times* for Thursday, April 6, 1876.)

Pages 651, 658, 659. The Editor is indebted to Mr. Kolekman for the use of the blocks appearing on these pages.



A
DICTIONARY
OF
PSYCHOLOGICAL MEDICINE.

HISTORICAL SKETCH OF THE INSANE.

WHEN a wide survey of the lives and actions of the ancients is made, the conclusion is irresistible that there never was a period in the history of the human race when insanity did not exist, and it perhaps would not be too much to say that, although its nature was to a large extent misunderstood, the madman was a recognised character, a felt anomaly, among his fellows. Although so frequently regarded as possessed, or as simply criminal, cruel, and bloodthirsty, a certain number were seen to be what is vulgarly understood as "mad," and more or less irresponsible.

A philosophical study of the erratic characters of antiquity, some of whom frequently played an important part on the stage of ancient history, will leave no reasonable doubt upon the mind that essentially the same morbid mental phenomena as occur in modern times, although undoubtedly assuming different forms, were present in the old world. A little reflection on the development of the human race will convince the student that to suppose its continuous freedom from aberrant action would be altogether absurd. In truth, how could it be otherwise? Granted an organ of mind, granted its subjection to the laws regulating other viscera of the body, and it follows that its development may be arrested, its functions disordered, its action suspended. This aspect of mental pathology will, however, be considered in other articles in this work.

Such a conclusion leaves the question open whether the *amount* of such aberration has greatly varied at different periods of human history. We may, indeed, in the entire absence of statistics, attempt to form some notion as to the probable extent of insanity in ancient as distinguished from modern civilisation, and from this point of view we may conclude that the causes of insanity were not present in the former in equal force to what they are in the latter. In prehistoric times we can only assume that the conditions of life were essentially the same as among savage races prior to the intercourse of civilised men.

That one cause of mental disorder—intoxication—was not wanting among the ancient Egyptians is sufficiently proved from that remarkable passage in an old papyrus * preserved in the British Museum: "Whereas it has been told me that thou hast forsaken books, and devoted thyself to pleasure; that thou goest from tavern to tavern, smelling of beer, at the time of evening. If beer gets into a man it overcomes his mind. . . . Thou knowest that wine is an abomination, that thou hast taken an oath that thou wouldst not put liquor into thee. Hast thou forgotten thy resolution?"

* Papyrus Sallier 1. Eleventh Letter.

That the Egyptians took freely of intoxicating beverages ample evidence is available. Other causes of mental trouble existed. Still, we maintain that their force was not so great as in subsequent ages. Moreover, it must be held that the influence of heredity would proceed in an increasing ratio with the course of time. The same reflections may be made on the early history of the Hebrews and the Greeks. The early example of Noah points in the same direction as that of the Egyptians. In Greece, intemperance and other forms of vice must have exerted their quantum of evil influence, present and future, for, again, the cumulative action of the causes of cerebral disease must be distinctly recognised. The history of the Romans forms no exception to the conclusion now indicated. Unsatisfactory as inferential statements must always be, as compared with actual statistics, we venture to make the general deduction, from a study of the social condition of the inhabitants of the old world, that insanity would not find a fruitful soil among the primitive races, that the exciting causes of the malady were present in considerable force in the four great nations mentioned, less forceful in the earlier, and much more so in their later and more complex civilisation. We are inclined to think that these vicious influences were not so powerful amongst the Egyptians and Semitic races as among the Greeks and Romans, probably less detrimental among the former than the latter. One thing is certain, that the proportion of weak and deformed children reared in the ancient world was less than in the present age. They perished in the course of nature, or were stamped out of existence; many of the perverse and morally insane were stoned to death; war destroyed a large number of feeble persons; while the Romans deliberately, and in the interests of the race, threw down from the Tarpeian Rock the children who were unfit to live.

If, passing from surmises, we turn to the records of ancient history in search of actual proofs of the occurrence of insanity, we find very sufficient mention of the madmen of antiquity, and do not fail to meet with the recognition of the disease, not only by historians, but by poets, philosophers, and physicians.

The first indication of an acquaintance with disordered mental conditions appears, so far as we are aware, in Egypt. If we turn to what a French writer terms "le plus ancien Livre du Monde"—the *Prisse papyrus* in the Paris Bibliothèque—a moral discourse by Prince Ptah-hotep, which portrays the social life of the Egyptians five thousand years ago, we find a graphic description of senile decay, in which it is said "the heart grows hard, and remembers not yesterday."* No further reference, so far as we can discover, is made to abnormal mental states, nor, indeed, could we expect it in a work of this nature.

Some references to insanity occur in the papyri of the fifteenth century before Christ. Modern research has extracted from them much that is of great interest in regard to the state of medical science at an early period of her history, and these references contain allusions to disorders of the mind. And first it is worthy of notice, as showing the antiquity of the doctrine of demoniacal possession, that the action of evil spirits in causing maladies is distinctly enunciated. Thus, Mahaffy states that most of the formulæ in one papyrus have reference to diseases supposed to be produced by the entrance of an evil spirit into the body.† The same papyrus contains a passage of special interest in this connection, and anticipates by many centuries the employment of music, in the case of Saul, to soothe the troubled mind. "If thou makest a man that knows not the plectrum, master of the harp, he will not play to charm away Melancholy."‡ The passage remains important whether we consider

* Cf. Mahaffy's "Prolegomena to Ancient History," 1871, p. 283.

† *Op. cit.* p. 299. The author adds: "If, in the Middle Ages, men sought to exorcise Satan out of the body of the sick, so, in the magic treatises with which we are concerned, the disease is identified with Bual or Set, the wicked gods of the Shepherds who had once ruined Egypt and they were cursed until they should relinquish their grasp."

‡ Cf. Mahaffy's "Prolegomena to Ancient History," 1871, p. 291.

that by this it is intended to convey the idea of madness or only sadness. The following letter from the late distinguished Egyptologist, Mr. G. Wilkinson, in reply to an inquiry whether he was aware of any reference to the insane in the ancient Egyptian monuments, will be read with interest:—" . . . Madness in the sense to which you refer is not a subject treated in hieroglyphical inscriptions, as far as my memory serves me, though the Coptic language, the descendant of the ancient Egyptian, has several words signifying madness (the equivalents of *insanus*, *stullus*, *stupor*, *amens*). There is a hieroglyphic group which sometimes means to be 'mad,' but it is generally, and more properly, 'deceit' or 'theft.' There is another [sketch given of an excited man] which signifies 'to be furious,' 'enraged,' or 'mad.' In my 'Egypt and Thebes' (vol. i. pp. 236-7) and in my 'Handbook of Egypt' (p. 127), I have noticed the treatment of patients in the Morostan (madhouse) at Cairo, which shows how well and how humanely they were treated in Egypt as early as the ninth century of our era, and it is not at all improbable that the idea was derived from a custom prevalent in the days of the *earlier* inhabitants of the country."

In the first reference to insanity in the Hebrew scriptures, namely, in Deuteronomy (chap. xxviii.), where the passage occurs, "The Lord shall smite thee with madness," the Hebrew word *Shig-gāh-gōhn* is employed as in the fourth chapter of Zechariah, "Smite the riders with madness." The Septuagint renders this expression by *παραπληξία*, translated "insanity" in the English version published by Bagster.

The figure which first in authentic history, although doubtless not in fact, presents an unmistakable example of insanity is that of Saul. It is not difficult to trace in Saul's career, prior to his attacks of madness, signs of that tendency to be carried away by unreasoning impulse rather than by calm reflection which is not unlikely to break out into actual frenzy. His rash adjuration in regard to fasting on a day of battle with the Philistines, which not only "distressed the men of Israel" but nearly caused his son Jonathan's death, is one of several acts which marked his hasty and impulsive condition of mind. Nor is it easy to avoid associating with his peculiar mental state his subsequent conduct when "he stripped off his clothes, and prophesied before Samuel, and lay down naked all that day and all that night" (1 Sam. xix. 24). In fact, on the second occasion upon which Saul's insanity is mentioned, it is distinctly stated that when the evil spirit from Jael, "or," says Canon Cook, in the "Speaker's Commentary," "as it may perhaps be rendered, the *melancholy* spirit" came upon Saul, he "prophesied in the midst of the house" (xviii. 10). On the first occasion no prophetic utterances are referred to, but it is simply said he was "troubled." "And Saul's servants said unto him, Behold now an evil spirit from God troubleth thee" (xvi. 15). On the second occasion the maniacal fury which prompted casting the javelin at David is mentioned along with his wild outpourings of prophecy.

Several interesting facts are established by this narrative—the early occurrence among the Israelites of a distinctly marked mental disorder; the reference of the symptoms to the action of a demon; the association of the maniacal and the prophetic state;* and, lastly, there is the employment of music as a curative agent in mental affections, described in the subsequent account of David's harp. The relief afforded to Saul by this instrument, is a striking illustration of the estimation in which the venerable remedy—music—was held; one which retains its credit in modern days as at least

* Parkhurst, in his Hebrew Lexicon, observes: "The Hebrew word for madness *shig-gāh-gōhn* (Deut. xxviii. 28), is particularly applied to the prophets, whether true or false, doubtless from their ecstatic raptures resembling madness (2 Kings ix. 11; Jer. xxix. 26; Hos. ix. 7). The above cited are all the texts wherein the root occurs." He says under Deut. vi. 5, "Thou shalt love the Lord thy God with all thine heart, and with all thy soul, and with all thy *mad*, מַד," that "the English word 'mad' is really Hebrew and applied to insane persons, because in their fits they put forth superhuman strength." This, however, is misleading, and receives no authority from later Hebrew scholars as Gesenius. In fact, our English word "mad" is derived from a Teutonic root meaning weak, maimed, or injured.

of general benefit in our institutions for the insane, and, indeed, its special influence as a directly curative agent has been occasionally observed.

The feigned dementia of David leaves no room to doubt that mental disorder was well known among the Philistines as well as the Jews. Achish, the King of Gath, must have been familiar with madmen and their ways when he said, "So ye see the man is mad; wherefore then have ye brought him to me? Have I need of madmen, that ye have brought this fellow to play* the madman in my presence? Shall this fellow come into my house?" True, he was deceived, but then many a skilled psychologist has been that.

David, again, must have been well acquainted with madness to have simulated it so promptly and so successfully. It is noteworthy that he did not imitate the symptoms with which he must have been so painfully conversant. He did not throw himself into a fit of maniacal frenzy. He did not affect to utter prophetic speeches. He did not assume the disturbed aspect which might have been ascribed to an evil spirit. In changing his behaviour, he feigned† to have completely lost his reason: "he scrabbled on the doors of the gates," "and let his spittle fall upon his beard" (1 Sam. xxi. 13). This was doubtless an easier, though a more complete, form of madness to assume than the others, for it did not require the imitation of any of the more delicate features of mental disorder—features more difficult to copy, and, if clumsily imitated, readily detected.

The fatuity David so cleverly acted was of a very different type from that stupidity or folly which Abigail represented to him as characterising her boorish husband. "Nabal" signified a fool, but not one who was destitute of all sense or intelligence; only a person who, as contrasted with Abigail, "a woman of good understanding," acted unwisely—foolishly. This evil churl must not, then, be regarded as more than this; "for as his name is, so is he; Nabal (*nah-vāhl*) is his name, and folly (*n'vāh-lah*) is with him" (1 Sam. xxv. 25). The same word is used in the 14th Psalm—"The fool hath said in his heart," &c.; and in the 17th of Proverbs—"The father of a fool has no joy."

Attempts have been made to prove that David did not feign madness at all, but that he actually had an epileptic fit. In support of this view the Septuagint version is brought forward: *ἰδοὺ ἴδετε ἄνδρα ἐπιληπτον*—"So ye see a man epileptic"—but in the previous paragraph the writer says that David *προσεποιήσατο*, that is, he simulated.

"To save him," says Adam Clarke, with more ingenuity than knowledge, "God caused the epileptic fit to seize him; and, in consequence, he was dismissed by Achish, as one whose defection from his master and union with the Philistines could be of no use, and thus David's life and honour were preserved" (note on Ps. xxxiv.).

Again, the disorder under which the Babylonian‡ king Nebuchadnezzar laboured for seven years involved the overthrow of the mental powers; on that point no difference of opinion exists. The narrative itself represents him as thoroughly aware, after

* The word is not expressed in the Hebrew, being the same used in verse 14, translated "mad." By "play the madman," our translators merely meant to act madly, in accordance with Johnson's definition of play—"to act, to perform." The Hebrew word *Shāh-gag* is the same as that employed in reference to Jehu, 2 Kings ix. 11, and in Jer. xxix. 26—"Every man that is mad" (*i.e.*, in ecstasy); and in Hos. ix. 7.

† The Hebrew word *Hāh-lal*, in Hithpoel voice, signifies mad, and does not necessarily imply feigning. nor is it so translated in any other passage. See Jer. l. 38—"They are mad upon their idols;" Jer. li. 7—"Therefore the nations are mad;" Nah. ii. 4, 5—"The chariots shall rage." But it is said he changed his behaviour—an accusative being used, *Tah'gam*. The same word is in the title of the 34th Psalm—"He changed his behaviour before Abimelech." Hence feigning seems to be implied. Abimelech, used here for Achish, was the title for "the Philistine kings."

‡ Mr. Rawlinson, in a letter to the Author, dated July 1, 1874, writes:—"There are many tablets in the British Museum, brought from the Nineveh Library, relating to Insanity and its cure. It is called 'Head-sickness,' and the symptoms are described in considerable detail and with much poetic imagery but the affliction is supposed to be caused by malignant spirits, and the directions for its treatment are.

his recovery, that not only had his body suffered, but that he had lost his reason* during that strange period of his existence. What form of mental disorder he laboured under is, however, open to question, and has occasioned much discussion. He may have been so utterly fatuous, and his habits so uncleanly, that his Court expelled him from the palace, and left him to roam as he listed with the beasts of the field. It has been suggested that he was stricken with leprosy, and hence the *taboo*. But, had this been the case, the fact would surely have been stated in the story.

Again, his loss of reason may have taken that form which in almost every age has been recognised as a frightful mental delusion—the belief in a transformation into an animal, sometimes a wolf, sometimes a dog, sometimes an ox. This complete loss of personal identity, and the conviction of being changed into one of the lower animals, accompanied frequently by the corresponding belief on the part of the beholders, is one of the most remarkable facts which the psychological history of our race reveals.

The explanation which the superstition of some of the Fathers and the schoolmen offered in order to account for the fact that a powerful king could persuade himself and others for so long a period that he had really been changed into a beast, was that demons were able to construct a sort of mould exactly similar to an ox, within which they concealed Nebuchadnezzar, so as easily to give credence to the metamorphosis. Thus Calmeil: “A l'aide d'un stratagème pareil, il arrive très souvent aux démons de faire croire aux hommes que certains individus sont doués du pouvoir de se transformer en loups, en chiens, en chats, en oiseaux. Les prélats du concile d'Angouri ont eu raison de décider que les essences angéliques n'avaient point reçu de Dieu la permission de décomposer les êtres vivants et de recomposer aussitôt avec leur substance d'autres espèces douées de vie; mais il ne s'ensuit pas de là que le diable soit dans l'impossibilité de tromper les sens, en faisant apparaître des espèces de fantômes auxquels il donne précisément la forme des êtres qu'il a intérêt à imiter.”

The madness of the Persian king, Cambyses, as told by Herodotus, forms so interesting a page in the history of the old-world madmen that we cannot pass over what this historian relates about it, especially as we agree with him in the conclusion he arrives at in regard to his mental condition, and dissent from that of Mr. Rawlinson, who after quoting Grote's observation, on the one hand, that he lost “every spark of reason,” and Huren's, on the other, that “we ought to be particularly on our guard against the evil that is related of Cambyses, inasmuch as our information is derived entirely from his enemies, the Egyptian priests,” adds that “so far as the stories told of him are true, they may be explained without involving madness.” We must think that there is too much consistency in the account given by Herodotus, and too much resemblance to similar cases of perverted moral feeling, the result of brain disease, to make it probable that the story is an invention of the Egyptians. That the Persians themselves have left no notice on record of the madness of their king does not seem to us to prove anything.

When Cambyses was at Memphis † the Egyptians were rejoicing and feasting, on the appearance of their god Apis—the image of the soul of Osiris. Cambyses, who had just lost some of his troops, was enraged, and sent for Apis [the calf of a cow never after able to bear young]. “When the priests returned, bringing Apis with

for the most part, magical. These inscriptions are curious and interesting, as embodying the ideas and usages of a very early age. The originals belonged to the primitive Turanians of Babylonia (B.C. 5000-2000); the copies we now have are accompanied by a Semitic (Assyrian) translation, which may have been made as early as B.C. 1500, and were re-copied for the library of Sardanapalus about B.C. 660. Insane persons are frequently met with at the present day in the East, and are everywhere invested with a quasi-holy character, as under a divine influence. I never saw anything approaching to a scientific treatment of the disease.”

* *Ἀπὸ τῶ καιρῶ αἱ φρένες μου ἐπεστράφησαν ἐπ' ἐμὲ* (Septuagint, Dan. iv. 3).

† Herodotus, book iii. chaps. 29, 30.

them, Cambyses, like the harebrained person that he was, drew his dagger and aimed at the belly of the animal, but missed his mark, and stabbed him in the thigh. Then he laughed, and said to the priests, 'Oh! blockheads, and think ye that gods become like this of flesh and blood, and sensible to steel? A fit god indeed for Egyptians, such an one! But it shall cost you dear that you have made me your laughing-stock.' When he had so spoken, he ordered those whose business it was, to scourge the priests, and if they found any of the Egyptians keeping festival, to put them to death. Thus was the feast stopped throughout the land of Egypt, and the priests suffered punishment. Apis, wounded in the thigh, lay some time pining in the temple; at last he died of his wound, and the priests buried him secretly, without the knowledge of Cambyses.

"And now Cambyses, who ever before had not been quite right in his mind, was forthwith, as the Egyptians say, smitten with madness for this crime. The first of his outrages was the slaying of Smerdis, his full brother, whom he had sent back to Persia from Egypt out of envy because he drew the bow brought from the Ethiopians by the Ichthyophagi (which none of their Persians were able to bend) the distance of two fingers' breadth. When Smerdis was departed into Persia, Cambyses had a vision in his sleep: he thought a messenger from Persia came to him with tidings that Smerdis sat upon the royal throne, and with his head touched the heavens."

Interesting as is the account of his subsequent career, we can only add that Cambyses sent orders for the execution of Smerdis. Afterwards he slew his sister. Herodotus states that from his birth he was afflicted with "the sacred disease," and that, therefore, it was not surprising that his mind should be affected in some degree in consequence of so sore a malady. Although we have no certain means of deciding whether Cambyses was really subject to epilepsy, it seems highly probable that he was so. Prexaspes, who carried his messages, when asked what the Persians thought of him, replied, "Oh! sire, they praise thee greatly, in all things but one,—they say thou art too much given to the love of wine." To prove that this was an untruth, Cambyses, pointing to the son of Prexaspes, who stood in the vestibule, exclaimed, "If I shoot and hit him right in the middle of the heart, it will be plain that the Persians have no grounds for what they say; if I miss him, then I allow that the Persians are right, and that I am out of my mind." So speaking, he drew the bow to the full, and struck the boy, who straightway fell down dead. The king was overjoyed when, on opening the body, the arrow was found to have entered the heart. Cambyses said, laughing, "Now thou seest plainly that it is not I who am mad, but the Persians who have lost their senses." At another time he took twelve of the noblest Persians and, without bringing any charge against them, buried them all up to the neck. He opened the ancient sepulchres, and he went into the Temple of Vulcan, making great sport of the images, and he went into the Temple of the Cabeiri also, into which the priests only might enter, and burnt the images which he found there. Well, then, might Herodotus write, "Thus it appears certain to me, by a great variety of proofs, that Cambyses was raving mad" (Herodotus, vol. ii. p. 436).

If to obtain information in regard to insanity among the early Greeks we turn to Homer, we find scanty reference to the disease. He is even silent as to the feigned madness of Ulysses. It is on much later authority that the story rests, and it cannot, therefore, be adduced in proof of the familiar acquaintance with the signs of insanity, either at the epoch of the Trojan war—the twelfth century B.C.—or the time of Homer, in the ninth, or the supposed period of his poems being committed to writing in the seventh. The tradition may have had a very early origin, but we can only cite written evidence from the "Cassandra" of Lycophron the Grammarian, who lived under Ptolemy Philadelphus, and the fables of Hyginus, the contemporary of Ovid. Here is the passage. Ulysses is thus apostrophised: "Oh, wretched man! how much better it would have been to have stayed with your father, and to have driven your oxen, and still to be fastening the yoke over the neck of your laborious he-ass in the feigned contrivances

of your madness, gad-fly stung as you were, than to have been experiencing these great miseries."* Tzetzes,† annotating Lycophron's "Cassandra," observes: "They say that Ulysses, when the Greeks compelled him to join the army against Troy, feigned that he was mad, and that, having yoked an ass and an ox, he began ploughing, but Palamedes put him to a test, for, taking Telemachus, the son of Ulysses, he placed him down in front of the plough, and Ulysses, being afraid lest he should hurt his boy, stopped the plough, and was known to the Greeks to have been feigning his madness."‡

Passing from Ulysses, we must cite the condition of mind to which Bellerophon was reduced by the anger of the gods, as described by Homer in the "Iliad," and which gave rise to melancholy being called in later times "morbus bellerophonteus." "But when now Bellerophon was hateful to all the gods, he on his part ranged alone the Aleïan plain, consuming his mind [*θυμόν*], and shunning the path of men" ("Iliad," vi.). Or as Pope versifies it:

"But when at last, distracted in his mind,
Forsook by Heaven, forsaking human kind,
Wide o'er the Aleïan fields he chose to stray
A long forlorn uncomfortable way,
Woes heaped on woes consum'd his wasted heart,
His beauteous daughter fell by Phœbe's dart."

Homer makes use of the word *λύσσα* (madness) in describing the mad rage of Hector, in the ninth book of the "Iliad," line 239, but nowhere in any distinctively insane sense:

"Hector glares revenge; with rage
Infuriate, and by Jove assisted, heeds
Nor God nor man, but maniac-like implores
Incessantly the morn at once to rise
That he may hew away our vessel-heads."

And again ("Iliad," ix. lines 304-5).

"Now strike at Hector—he is here; himself
Provokes thee forth; madness [*λύσσα*] is in his heart,
And in his rage he glories that our ships
Have hither brought no Grecian brave as he."

As applied to Achilles also, the expression is only used in the sense of rage or vengeance:

"Achilles pressed them, vengeance [*λύσσα*] in his heart
And all on fire for glory."—COWPER, *Iliad*, xxi. lines 542-3.

The word *μάργος* (mad) is applied once in the "Odyssey" in a somewhat distinctive sense, when Homer represents Penelope as addressing the nurse, Euryclea: "Dear nurse! the gods have driven thee frantic [*μάργος*], who indeed are able to make one foolish, although one be very wise, and have changed a vain-minded person to prudence; they have hurt even thee, for before thou wast right in thy understanding ("Odyssey," xxiii. line 2). Pope thus:

"Touched at her words, the mournful Queen rejoined:
Ah! whither wanders thy distempered mind?"

As in other instances, so with Ajax, we find that it is not Homer, but one of the tragic poets, who represented him as becoming insane. It is Sophocles who makes

* "Ὁ σκέτλι' ὡς σοι κρείσσον ἦν μίμνειν πάτρα
βοηλατοῦντι, καὶ τὸν ἐργάτην μύκλον
κάνθων' ὑπὸ Ζευγλήσι μεσσαβοῦν ἐπι
πλασταῖσι λύσσης μηχαναῖς οἰστρημένῳ
ἢ τηλικῶνδε πείραν ὀτλήσαι κακῶν.

† "Cassandra," or "Alexandra," of Lycophron. Tzetzes.

‡ Tzetzes probably took the fable of Hyginus as his authority (Hyg. fab. xcv.).

Minerva, to whom the attack of madness in Ajax was attributed, thus address Ulysses when hesitating to see him :

"Dost thou then fear
To see a madman?"

Ulysses replies :

"Were his senses sound
I should not fear him."

And Tecmessa, when asked "how this sudden ill began," explains :

"The night was far advanced ; the evening lamps
No longer blazed ; when grasping in his hand
His dreadful sword, he bent his eager steps
Towards the passes, from all haunt now clear.
What then befel I know not ; he returned
Driving in bonds the bulls, the herdsmen's dogs,
And lowing herds ; some by his sword were slain
And hewn in pieces ; some like captives bound,
Raging against the flocks, he scourged as men.
At length he issued from the tent, and held
Long converse with some shadow ; of the sons
Of Atreus much, and of Ulysses much
He spoke ; and laughed aloud, how their base deeds
He in this sally amply had revenged.
Entering the tent again, his sense at length
Slow he regained ; but when he saw the ground
With carnage covered thus, he smote his head
And raised a mournful cry ; then prostrate lay
Stretched midst the havoc of the slaughtered flocks.
Rending with violence his hair. Long time
He lay, nor uttered word ; with vigorous threats
Then bade me tell him every circumstance
Of what had passed, and whence the carnage asked
That lay around him ; struck with fear, my friends
Distinct I told him all that had been done,
Far as I knew it ; straight with mournful cries
Loud he lamented ; such from him before
I never heard."—POTTER'S SOPH. *Ajax*.

This is the finest of the early descriptions of an attack of insanity, and it is thoroughly true to nature. Ajax, his mind unhinged by the mortification he had undergone, becomes wildly maniacal, sets out alone at dead of night, sword in hand, to avenge himself, and expends his fury upon the oxen he meets in his path and mistakes for men, while others he drives back with him as captives to the tent. Then, issuing forth again, he fancies he sees an apparition, and converses with it, especially about his rival, the son of Laertes, and with maniac laughter exults over his fancied revenge in having slain the oxen. In the quiet of his tent his excitement subsides, and he becomes rational again. He is surprised and vexed to find what he has done under the influence of irresistible impulse and delusion, and passes for a time into a state of acute melancholy.

Homer records the death of Iphitus at the hands of Hercules, but he does not say a word about the latter being out of his mind when he committed the act, as later poets do. All he says in the "Odyssey" is that Iphitus came to seek the horses which he had lost, that the noble-minded son of Jove, the hero Hercules, skilled in mighty deeds, slew him, although his guest, nor did he reverence the anger of the gods, but kept for himself the well-hoofed steeds in his palace.

Sophocles also relates the story, but does not attribute the deed to madness. According to him, it was done "by guile." Had Hercules openly assailed him, Jove would have applauded him for justly vanquishing his opponent ; for the gods do not love injustice ("Trachiniæ," line 270).

Apollodorus is the first authority, so far as we know, who refers the conduct of

Hercules to insanity. His expression is: "Hercules killed Iphitus, having fallen into a fresh attack of madness" (*Μαρείς δὲ αὐθις ἀπὸ τῶν τιρονθίων ἔβριψεν αὐτὸν τειχῶν*) ("Bibliotheca," lib. ii. c. 6). This was subsequent to the murder of his wife and children under the influence of Juno, to which we shall return. Diodorus Siculus gives a similar account.

Dr. Josat,* in his interesting historical researches on epilepsy, states that, according to the mythologist Ælian, Hercules was highly nervous, violent, and passionate. "Having gone one day to consult the oracle at Delphos, the priestess informed him that the god was not willing to reply. Thereupon, Hercules, who was not forbearing, became violent, upsetting and smashing in a thousand pieces the sacred tripod. On another occasion he dashed his musical instrument at the head of Linus, his teacher, who was making him some reproaches, and killed him outright." At the age of twenty-three, the Furies, according to fable, possessed him, and in one of his fits he killed all the children he had by Megara. This is the attack of epileptic insanity described by Euripides, to which we shall presently allude. During, or consecutively to, a fit which occurred a short time after, upon having been denied the hand of Eurytus's daughter, he slew Iphitus, her brother, although friendly to him. It was likewise after another obvious epileptic attack that he perpetrated in the house of Æneas, King of Calydon, the murder which caused him such stinging remorse that he again attempted to commit suicide. It is further related that, feeling himself one day much troubled by the sun's rays, he became furious, and shot at the sun one of his arrows. Fable reports, besides, that this hero was of such a passionate character that, to account therefor, and rather to justify it, it has been assumed that Juno—who had as acknowledged, her reasons for disliking Hercules—charged one of the Eumenides specially to upset his senses to a degree of furor" ("Encycl. Méth.," art. "Hercules").

Euripides, in his "Mad Hercules" (*ΗΡΑΚΛΗΣ ΜΑΙΝΟΜΕΝΟΣ*),† represents Hercules as becoming mad when he had slain the usurper Lycus, who was about to kill his wife Megara and his family. In his madness, caused by Juno, he murders his own wife and children, labouring under the delusion that they belonged to Eurystheus. When Lycus is destroyed, Iris and Madness‡ (*λύσσα*) enter, the former saying: "Be of good cheer, old men, beholding this Madness here, the offspring of Night, and myself, Iris, the servants of the gods; for we are come, not as a bane to the city, but are making war against the house of one man, whom they say sprung from Jove and Alcmena. . . . Juno wishes to slay him in fresh bloodshed, by slaying his children, and I wish it too. But come, collecting thy relentless heart, thou unwedded daughter of black Night, and urge on, excite madness in this man, and child-slaying disturbances of reason, and leapings of his feet; let go thy cable of blood, so that, having sent his crown formed of beauteous children down to the ferry of Acheron by his own murderous hand, he may learn of what kind is the wrath of Juno and of myself against him." Thus Madness replies: "Of a noble sire and dame am I sprung, from Night and from the blood of Cœlus. But I have this credit, not to be held in honour by friends, nor am I pleased at going against the friends of men." The Fiend, *i.e.*, Lyssa, after exclaiming that he will "rush with racing speed against the breast of Hercules," vows that he will cause him to slay his children; but "the slayer shall not know that he is killing them before he ceases from my madness. See! even now Hercules shakes

* "Recherches historiques sur l'Épilepsie," p. 10. Paris. 1856.

† Buckley's trans., vol. ii.

‡ Dr. Gasquet says: "Mr. Paley has collected some information from which it would appear that, as a Chthonian or Titanian power, the genius of Madness was probably clad in black garments, and wore a mask of the terrible sort. It would seem that her head was entwined with snakes like an Erinny, and she is described as riding in a car. She resembled outwardly, therefore, one of the Eumenides, from whom she was distinguished by her office—since these inflicted madness as a punishment for moral guilt, while Lyssa was a servant of the gods, and did their bidding upon the men they thought to chastise" (*J. of Ment. Science*, July 1873, p. 222). The reader should consult this and other excellent papers on the "Madmen of the Greek Theatre."

his head, standing at the barriers of the race-course, and in silence rolls his distraught scowling eyes." The Chorus: "In her chariot hath gone the marble-visaged, all-mournful Madness, the Gorgon of Night, and with the hissing of a hundred heads of snakes she gives the goad to her chariot, on mischief bent." In reply to the question of the Chorus, "Say in what manner he was urged by the gods to evil deeds?" the reply comes from the messenger that Hercules, after slaying Lycus, "was no longer the same, but distraught with rollings of the eyes, and dropt foam down his well-bearded chin."

Most striking and instructive, from our present point of view, is the description of the slaying of his children under the influence of delusion. With a goad in his hand, Hercules, thus driven to commit violent acts, stripped his body naked and fought with an imaginary object, and then proclaimed himself the victor. Afterwards, having made ready his bow and arrows against his own sons, under the delusion that they were the children of Eurystheus, one of them is described as stretching forth his hands to his father's beard, and crying, "Oh, dearest father, do not destroy me; I am thy son." But Hercules, with savage rolling eyes, brought his club down upon the golden-haired head of the boy and broke his skull. The other children and the wife are sacrificed by the same murderous fury. Pallas appears brandishing a spear, and hurls a rock against the breast of Hercules, who falls upon the ground. He is then fastened by cords to a pillar, when he falls asleep. When he awakes free from his delusions, he is astonished at his condition, and asks those around him to explain. "I sure am stricken senseless; I am at a loss as to where I can be. Ah! Who of my friends is near; who can cure my doubts?" His father, Amphitryon, points to the prostrate bodies of his children, and tells him that he has destroyed them with his bow—in madness. Hercules asks: "Where did the madness seize me?" And his father replies, "When round the altar thou wast purifying thy hands with fire." Theseus, his kinsman, enters and inquires what has happened, and Amphitryon explains, and describes Hercules as "frenzy-driven with maddening violence, with poison of the hundred-headed Hydra." Hercules, ashamed, threatens suicide. His fine apostrophe to his father and dead wife and children is not necessary to the elucidation of our subject.

Let the reader dismiss from his mind the mythology of this story, and of the gods and goddesses to whom the events which transpire are attributed, and regard it simply as the true description of a tragic fact well known either to those with whom the legend originated, or to Euripides, or both, and he cannot doubt that this dramatic poet had himself seen a raving maniac, and was probably well acquainted with cases—chiefly of epileptic insanity—such as not unfrequently appear in our newspapers, in which the father of a family, cutting the throats of his children under the influence of a blind epileptic impulse or delusion, becomes conscious of what he has done and bitterly regrets it.

Regarding Hercules, then, as an actual case of epileptic homicidal mania, the play is full of instruction for us. We learn that, in the days of Euripides, such a madman as Hercules would be bound with cords and fastened to the nearest spot, thus showing that mechanical restraint was resorted to in the management of the insane. We find the world-old idea brought into prominence that the cause of madness is an extraneous power, or fiend—Lyssa, the daughter of Night, one who, however, is not pleased at harming the friends of man, and yet has the character of not being held in honour by them. "Swift hath a demon changed the prosperous." But what appears, above all, faithfully delineated in the fearful scene played by Hercules, is a paroxysm of epileptic insanity. "Morbus Hercules" is perhaps the oldest name given to epilepsy,* obviously from having been exhibited by Hercules. The description which Euripides gives, vividly portrays, as already stated, every characteristic feature of the epileptic attack. The sudden accession, the rolling of the blood-shot eyes, the convulsive and rapid

* Hippocrates, "De Morb. mul.," lib. 2, p. 157.

breathing, the spittle running down his beard, the frantic laughter, the agitation, delusions, and furious homicidal acts, with the final profound sleep, are most unmistakable symptoms of epileptic madness, with its no less distinctive features of unconsciousness, and complete oblivion of what has occurred during the fierce maniacal fit. Then, again, the nature of the delusion, prompted by the idea that possessed him, is equally peculiar to epileptic insanity; and thus we are told that Eurystheus, the man whom Hercules has most reason to hate, is supposed, in his furious attack, to be the father of his children, and he slays them. Nothing can be truer to nature, or more graphically describe the sudden criminal deeds of the epileptic at large, of our own day.

Lastly, we witness the not rare suicidal tendency during the stage of despondency that follows the epileptic attack, and the so-common association of the suicidal and homicidal insane impulses.

Plato's allusions to madness bear directly upon our theme. In the "Timæus," after speaking of bodily disease, he goes on to say: "In the above manner are the diseases of the body produced, but the diseases of the soul, resulting from the habit of the body, are as follows. We must admit that the disease of the soul is folly, or a privation of intellect, and that there are two kinds of folly—the one madness, the other ignorance. Whatever passion, therefore, a person experiences that induces either of them, must be called a disease. Excessive pleasures and pains, however, are what we should deem the greatest diseases of the soul, for when a man is over-elevated with joy or unduly depressed with grief, and so hastens immoderately either to retain the one or fly from the other, he can neither perceive nor hear anything properly, but is agitated with fury, and very little capable of exercising the reasoning powers." Plato then goes on to enunciate an opinion, which confounds crime and insanity together, to an extent which must delight the modern supporter of the doctrine of necessity, and, therefore, irresponsibility in all criminal cases. He says: "And, indeed, it may be almost asserted that all intemperance in any kind of pleasure, *and all disgraceful conduct*, is not properly blamed as the consequence of voluntary guilt. For *no one is voluntarily bad*; but he who is depraved becomes so through a certain bad habit of body, and an ill-governed education." . . . "All the vicious are vicious through two most involuntary causes, which we shall always ascribe rather to the planters, than the things planted, and to the trainers, rather than those trained" (Davis, vol. ii. pp. 401-3). In the same remarkable production, Plato observes, "There are two kinds of madness, one arising from human diseases, the other from an inspired deviation from established custom."

Most interesting is it to observe that Plato, in the laws which he lays down for his Republic, does not forget to provide for the insane. Thus he says: "If any one is insane, let him not be seen openly in the city, but let the relations of such person watch over him at home, in the best manner they know of; and if they are negligent, let them pay a fine, he with property of the largest valuation a hundred drachms; he of the next valuation, four out of five parts of a mina; he of the third, three parts of a mina; and he of the fourth, four parts" (book xi. c. 13).

A study of Aristotle shows that the questions which excite philosophical interest and inquiry at the present day came under his acute analysis. To him, he says, the soul and the body appear to sympathise, and when the former in any degree changes in quality, it also changes the form (*μορφή*) of the body, and, *vice versa*, when the latter undergoes a change in quality, it affects the condition of the soul. His perception of the fundamental principle of physiognomy is evident when he adds that, since it is one of the functions of the soul to be sorrowful and to rejoice, the face of the sorrowful must look sad, and of those who rejoice, cheerful. He even goes so far as to contemplate the possibility of the mental and physical correspondence being retained after death. The sympathy between soul and body would remain if the form of the latter were retained. There would, however, be this difference, that the one could not contribute to the other as in this life. In proof of this relationship during life he observes that insanity appears to attach itself to the soul, and yet physicians, by

purging the body, and by diet, free the soul from insanity. As, therefore, the body is liberated from disease at the same time, it is clear that they contribute to each other. The similitude between physical forms and the mental powers is thus strongly insisted upon (see "The Works of Aristotle," by Thomas Taylor, 1812, vol. vi. chap. iv. p. 432).

Aristotle was fully alive to the influence of fever in causing hallucinations or illusions, the instance given being the appearance of animals on the wall. If the patient is not very ill, he recognises the nature of the illusion; otherwise, he is deceived. Aristotle compares this deception of the senses to what happens when the timid man, under the influence of fear, fancies he sees enemies from the slightest resemblance, or when the lover, under the influence of affection, thinks he sees the object of his love. In short, in proportion to the intensity of the passion by which a man is influenced is the resemblance by which he is deceived (*op. cit.*, vol. viii. p. 199).

To Hippocrates we now turn for evidence of his acquaintance with insanity. What did a physician living in the fifth century before Christ know of it? — the contemporary of Pericles, the philosophers Socrates and Plato, the great historians Herodotus and Thucydides, and other remarkable men.

Hippocrates contributes his share to our knowledge regarding the epilepsy and insanity recognised and treated by the ancient physicians, and even if we confound the genuine with the spurious works of the father of dogmatic medicine, we are assisted by the latter in our immediate inquiry, for they are themselves confessedly old, and the counterfeiter who introduces the disorders of the mind into his writings has a distinct value for us, which is of course altogether foreign to the question of authenticity. Thus, for example, words put into the mouth of Democritus show the ideas of the writer of the story. As Greece obtained her knowledge of medicine chiefly from Egypt, and introduced therefrom the practice of superstitious methods and enchantments, we may well suppose that the insane were originally treated by these means by Melampus, who was the first to employ them (as well as hellebore), by his successors Chiron, and the most renowned of all, Æsculapius, Podaleirius, and Machaon who in their methods probably advanced but little in the medical art. After the fall of Troy, likewise, the Asclepiadæ spread the like medical practice throughout Greece, and, among the schools which they established, the celebrated one of Cos, known to all as the Medical School of Hippocrates, received the same instruction. Those who laboured under disease were brought to the Temples of Æsculapius to be cured, near which usually resided his descendants, who based their claim to medical skill on their Æsculapian pedigree. Among the group of patients who flocked to the temple or were brought there by their friends to offer up sacrifice and prayer to the god, and to sleep in his temple, might, doubtless, have been seen epileptics and lunatics, as in more modern times these were brought in Britain to holy wells and churches.

Whatever influence, however, may have been exerted upon Hippocrates by the superstitious practices of his predecessors in the medical art, it is very certain that he repudiated the current notions in regard to the nature of epilepsy. Of the "morbus sacer" (epilepsy) Hippocrates thus writes:—"The sacred disease appears to me to be no wise more divine nor more sacred than other diseases; but has a natural cause, from which it originates like other affections. Men regard its nature and cause as divine from ignorance and wonder, because it is not at all like other diseases." Hippocrates accounts in part for this by the simplicity of the alleged cure, which it is asserted may be effected by purifications and incantations. He then observes that if its wonderful character causes it to be divine, instead of one there are many diseases which would be sacred. He proceeds: "I see men become mad and demented from no manifest cause, and at the same time doing many things out of place. . . . They who first referred this disease to the gods appear to me to have been just such persons as the conjurors, purificators, mountebanks, and charlatans now are. . . . Such persons, then, using the divinity as a pretext and screen for their own inability to afford any assistance, have given out that the disease is sacred,

adding suitable reasons for this opinion, and they have instituted a mode of treatment which is safe for themselves—namely, by applying purifications and incantations, and enforcing abstinence from baths and many articles of food, which are unwholesome to men in diseases. . . . This disease is formed from those things which enter and go out of the body, and it is not more difficult to understand and cure than the others, neither is it more divine than other diseases” (“The Genuine Works of Hippocrates,” Syd. Soc., vol. ii. p. 854).

It is impossible to over-estimate the sense and acuteness of the physician who, in the fifth century B.C., could write: “Men ought to know that from nothing else but the brain come joy, despondency, and lamentation . . . and by the same organ we become mad and delirious, and fears and terrors assail us, some by night and some by day; and dreams, and untimely wanderings, and cares that are not suitable, and ignorance of present circumstances, desuetude, and unskilfulness. All these things we endure from the brain when it is not healthy, but is more hot, more cold, or more moist, or more dry than natural, or when it suffers any other preternatural and unusual affection. And we become mad through humidity [*of the brain*]. For when it is more moist than natural, it is necessarily put into motion, and, the affected part being moved, neither the sight nor hearing can be at rest, and the tongue speaks in accordance with the sight and hearing. As long as the brain is at rest a man enjoys his reason; but the depravement of the brain arises from phlegm and bile, either of which you may recognise in this manner: Those who are mad from phlegm are quiet, and do not cry out or make a noise, but those from bile are vociferous, malignant, and will not be quiet, but are always doing something improper. If the madness be constant, these are the causes thereof; but if terrors and fears assail, they are connected with derangement of the brain, and derangement is owing to its being heated. And it is heated by bile when it is determined to the brain along the blood-vessels running from the trunk, and fear is present until it return again to the veins and trunk, when it ceases. He is grieved and troubled when the brain is unseasonably cooled and contracted beyond its wont. It suffers this from phlegm, and from the same affection the patient becomes oblivious” (“The Sacred Disease,” *loc. cit.*).

Hippocrates distinguished between mania (*μανία*), melancholy (*μελαγχολία*), and a state of dementia (*παράνοια*). The last word in the Greek has been in our own day diverted from its original meaning of mental weakness to a very different form of insanity. As to those labouring under melancholia, he speaks of their anxiety, their love of solitary places, their fears, and the frightful dreams by which they are tormented. If this observation, which occurs in the treatise “De Morbis” was not actually written by Hippocrates, it must proceed from a very early writer. In his “Epidemics” he describes a woman, one of his patients, as “of a melancholic turn of mind, who from some accidental cause of sorrow, while still going about, became affected with loss of sleep, aversion to food, and had thirst and nausea (book iii. case xi.).

In several of the works ascribed to Hippocrates, reference is made to the treatment of the insane by that favourite remedy of the ancient physicians, hellebore, and, although their genuineness is doubtful, they cannot be passed over as immaterial. He is represented as having employed white and black hellebore, in order to purge the patient of his melancholy humour. In the correspondence between him and Democritus, the latter writes: “I am persuaded that if to me you should give hellebore to drink as to the insane, it would be right that the insane should escape it; and according to your art, you would have blamed it as being itself the cause of madness; for hellebore, when given to the sane, pours darkness over the mind, but to the insane it is very profitable” (Frankfort edit. of Hippocrates, 1595). It may here be mentioned that that high authority on the life and writings of Hippocrates, Dr. Adams, observes, “That Hippocrates visited Abdera, and that he was familiarly acquainted with Democritus, are facts which the most sceptical critic will hardly venture to call in question.” There was, no doubt, a substratum of truth in the forged letter of Hippocrates to Damagetus in which an account of his interview with Democritus is given. The latter is made

to declare to his visitor that he was writing a treatise on insanity. Hippocrates begs him not to delay to tell him in what way he treated of madness, its qualities, its causes, its development, and its decadence. He replied by pointing out that he made dissections of the animals which lay before them, not in hatred of the works of the gods, but in order to discover the proper nature of the gall and of the bilious humour. "You are not ignorant that from such sources madness springs when bile is in excess in man, with some more vehemently, with others more gently and intermittently;" upon which Hippocrates exclaimed, "You speak with truth and wisdom."

Hippocrates in his treatise *περὶ παρθενίων* reports the cases of young women who, having been cured of excitement and delirium arising at the age of puberty, went to consult the soothsayers in order to know what sacrifice they ought to make to Artemis ("Œuv. d'Hip.," ed. Littré, tome viii. p. 468). As Maury observes upon this passage, recourse was more especially had to the intervention of soothsayers in mental maladies, because they were *par excellence* regarded as sent by the gods. In his work on the Sacred Disease, purification for those labouring under any hallucination is particularly referred to, the purifiers being denominated *ἀπομάτριάιαι*. These purifications were, it is stated, accompanied by sprinklings—a kind of baptism.

Our space will not admit of doing justice to Hippocrates, and we can only note that among other propositions laid down by him are the following:—That melancholiacs become ordinarily epileptics, and *vice versâ*; that, of these two conditions, the preference is determined by the direction taken by the disorder: if it is thrown upon the body—epilepsy; if upon the intelligence—melancholia. Again, with those labouring under mental disease, the appearance of varicose veins or hæmorrhoids relieves the patient. Another axiom is that mental disorders characterised by gaiety are less dangerous than those marked by seriousness.

We now pass on to a very remarkable physician, the justly celebrated Asclepiades. His treatment comes to us through the still more widely known Celsus, who says that Asclepiades prescribed for the insane, abstinence from food, drink, and sleep in the early part of the day; that the patient should drink water in the evening; that then gentle frictions should be employed, while, later on, liquid food should be administered, the frictions being repeated. By such means it was hoped to induce sleep. In fomentations of mandragora, poppy, or hyoscyamus he had no faith. Still worse was venesection. Would that his opinion had prevailed in more recent times. His patients were directed to be placed in the light—a protest against dark cells.

It has been said on high authority* that he recommended bodily restraint to be avoided as much as possible, but we have not been able to find evidence of this statement; on the contrary, it is stated by Cælius Aurelianus that he employed chains: "Asclepiades officiis solitis amoveri jubet ægrotantes, et *vinculis constringi*, et abstinencia ciborum nimia coerceri, et siti affici, tum vino corrumpi vel in amorem induci." It may, however, be said that it was merely intended to employ bonds as he recommended fasting and thirst, in order to render the subsequent gratification of the senses all the more delightful to the patient. It is only on this supposition that one can agree with Feuchtersleben that he applied to the treatment of insanity the maxim, "Cito, tuto, et jucunde." It was certainly better to give stimulants than to bleed, but he appears to have extended the area of sensual indulgence in a way which must have often proved of more than doubtful service to the patient.

One of the disciples of Asclepiades, Themison, was styled "phlebotomos" and may therefore be supposed to have dissented from his master's objection to bleeding in insanity. He, however, prescribed a liberal diet. He recommended baths and astringent fomentations. Another of his disciples (Titus) recommended stripes in the treatment of mania, but in this was no worse than Cullen.

If we turn to the practice of celebrated Roman physicians, we find that the recourse to stripes was also sanctioned by no less an authority than Celsus.

* Feuchtersleben's "Med. Psychology."

He objected, doubtless, to rough measures in slight cases—patients who are merely a little incoherent and do slight injury with their hands. The audacity of the more violent was to be subdued, and they were to be made to submit by blows, as any one else who requires restraint. Scold the patient whose mirth is excessive. Should conciliation fail, patients must be cured by some sort of torment; thus, should they be detected in falsehood or deceit, they must be hungered, or bound in chains, or hogged (“fame, vinculis, plagis, coercendus est”). Under this vigorous policy and resolute treatment they will be at last quite disposed to capitulate, to eat anything, and so successful is the practice that even their memory will be refreshed. To startle a patient suddenly, to greatly terrify him—this was excellent treatment. There was, however, a better side in Celsus. He directed that all that was possible should be done to divert the melancholiac from his sadness, and to excite cheerful hopes, pleasure being sought in fables and sports, and whatever else might conduce to health. Of course bleeding and, if not contraindicated, starvation diet, with an emetic and a smart purgative of white hellebore, were enjoined. Sadness, as all the old physicians thought, was the result of black bile. Music was not overlooked, and reading aloud to the patient was recommended. Celsus’s work was an epitome of the treatment of the insane handed down to his times, which were coeval with the Christian era. It is melancholy to reflect that many centuries afterwards all that was bad in his system was faithfully copied, and even intensified, while what was good (the music, the sports, and the excitement of cheerful hopes) was overlooked; as was also the employment of friction—in other words, massage, and regular exercise after food. Whether the rocking motion of a hammock and the sound of a waterfall, recommended by Celsus, might have been copied with advantage we will not say, but they would have been much better than the bath of surprise and the rotatory swing.

Cælius Aurelianus, who lived a little later than Celsus, we can regard with vastly more satisfaction. He has no patience with those who reduced a violent patient to obedience by flagellation, which he speaks of as applied to the face and head, and so causing swellings and sores. He recognised the mental pain from which the unfortunate patient would suffer on returning to consciousness. He placed the maniac in a room moderately light and warm, and excluded everything of an exciting character. His bed was to be firm, probably fixed to the floor, and situated so that the patient would not be disturbed by seeing persons enter the room. Straw, soft and well beaten, but not broken, was to be used for the bed, and if the patient tried to injure himself he was to be padded on the neck and chest with soft wool. Minute and praiseworthy were the rules laid down by this enlightened physician as to the duties of attendants, and would not disgrace the corresponding regulations in the Handbook prepared by the Scotch branch of the Medico-Psychological Association. Thus, they were to beware of appearing to confirm the patient’s delusions, and so deepen his malady; but, on the other hand, they were to take care not to exasperate him by needless opposition, and they were to endeavour to correct his delusions, at one time by indulging condescension, and at another by insinuations. Fomentations, by means of warm sponges, were to be applied over the eyelids in order to relax them, and at the same time exert a beneficial influence on the membranes of the brain. Restlessness and sleeplessness were to be relieved by carrying the patient about on a litter. During convalescence, theatrical entertainments were to be given, and it was supposed that excitement would be lessened by representing scenes of a solemn or tragic character. Riding, walking, and the exertion of the voice were recommended. For the poorer patients, farming was to be encouraged if they were agriculturists, while, if sailors, they were to be allowed to go on the water. He denounced the abstinence which Celsus had extolled, and asserted that a low diet was more calculated to cause than to cure madness. Further, he protested in the strongest manner against putting patients in chains, and trusted to the care and control exercised by attendants. He speaks against the practice pursued by some, of making patients intoxicated, inasmuch as insanity was often caused by drink. He was opposed to venesection (but

not to cupping) and to reducing the strength of the patient by the administration of hellebore and aloes, but, on the contrary, he favoured soothing and invigorating the patient by emollient and astringent applications respectively. "Vinum vel amor," which were prescribed by Asclepiades, were reprobated by Cælius, especially the latter. Here, then, was a physician far in advance of all who had preceded him, and the marvel is that he should have been equally in advance of almost all who succeeded him. We desire to do him all honour, and to render him the homage which is so justly his due, by placing him on the highest pedestal in the Temple of Fame among the physicians of antiquity so far as relates to the medical and moral treatment of the insane.

We must not pass over a name, better known, perhaps, than that of the foregoing, but not meriting more praise—that of Galen. The humoral pathology, though more or less present in the writings and practice of the ancients, appears in strong relief in the works of the physician of Pergamus. With him moisture produces fatuity, and dryness sagacity, and therefore the sagacity of a man will be diminished in proportion to the excess of moisture over dryness. He therefore advises the medical practitioner to endeavour, above all things, to preserve a happy medium between these opposite qualities. Should you be of the opinion that the whole of the patient's body may contain melancholy blood, you are to employ venesection. On the other hand, bleeding must be avoided if madness arise from idiopathic disease of the brain. Thick and black wine was to be especially avoided, "as from it the melancholy humour is made." This humour is a condition of the blood, "thickened, and more like black bile, which, exhaling to the brain, causes melancholy symptoms to affect the mind." His production, "De cognoscendis curandisque animi morbis," is very disappointing from a medical point of view.

We would here retrace our steps to observe that if Cælius Aurelianus shines as a physician of the first century, Plutarch commands our admiration as a philosopher at the same period on account of the enlightened views enunciated when treating of certain mental conditions and the superstitions of his day. He writes as one well acquainted with religious melancholy. Thus, in describing the superstitious man, he says that every little evil is magnified by the scaring spectres of his anxiety. "He looks on himself as a man whom the gods hate and pursue with anger, and a far worse lot is before him; he dares not employ any means of averting or of remedying the evil, lest he be found fighting against the gods. The physician, the consoling friend, are driven away. Leave me, says the wretched man, me, the impious, the accursed, hated of the gods, to suffer my punishment. He sits out of doors, wrapped in sackcloth or in filthy rags; ever and anon he rolls himself naked in the dirt, confessing aloud this and that sin; he has eaten or drunk something wrong; he has gone some way or other which the divine being did not approve of. The festivals in honour of the gods give no pleasure to the superstitious, but they fill him rather with fear and affright. He proves in his own case the saying of Pythagoras to be false—that we are happiest when we approach the gods—for it is just then that he is most wretched. Temples and altars are places of refuge for the persecuted; but where all others find deliverance from their fears, there the superstitious man most fears and trembles. Asleep or awake, he is alike haunted by the spectres of his anxiety. Awake, he makes no use of his reason, and asleep, he enjoys no respite from his alarms. His reason always slumbers; his fears are always awake. Nowhere can he find an escape from his imaginary terrors."*

In his Essay, "Whether the Passions of the Soul, or the Diseases of the Body, are worse?" in which the former term includes both vice and madness, Plutarch speaks of epilepsies, apoplexies, and those burning fevers which, carrying on the inflammation even to the loss of the wits, and disturbing the senses, as it were in a musical instrument, move the heart-strings till then untouched (vol. iv. p. 504).

Again, there is a striking passage in which he points out "that those who are

* Plutarch, *περι δεσποδαιμονίας και ἀθεύτητος*, cap. 7. 9. 3. 5.

troubled with bodily sickness are sensible of what they require for their cure, those who are sick in mind shun philosophers, because they think that they themselves act excellently well in those very things in which they most offend." He affirms that soreness of the eyes is a less serious malady than madness, and gout in the feet than a frenzy in the brain, for in the one a man, being sensible of his distemper, calls for the physician, and stretches out his vein to be opened, while, on the contrary, those who, like Agave, are seized with madness, act quite differently. The sick man lies quietly in bed until he is cured, or, if he tumbles about a little, he is easily calmed by such words as "Lie still at ease, poor wretch, keep in thy bed" (Eurip. "Orest.," 258); while, on the contrary, those affected by the passions of the soul are then the most active, and, when he has most need of patience, silence, and retirement, he is impelled into the light, and is noted for his eagerness in contending, and for the force of his irregular actions, and for many unfitting words (*op. cit.*, p. 504).

In his "Morals" Plutarch insists that every disease or defect is peculiar to a special part or faculty, as blindness to the eye, &c.; in the same way, no one can be said to be beside himself or mad to whom Nature never gave the use of thought, reason, and understanding. He then meets the objection which may be made from the fact that dogs go mad, and that he himself had seen horses in the same condition, while bulls and foxes are said to become mad, by replying that it is evident that even these creatures have a sort of reason which is not to be despised, and can become disordered. Plutarch asserts that, as it would be absurd to say that a melancholy or delirious man is not beside himself, so is there no other explanation to be given of the corresponding state into which the lower animals fall. The man who thinks otherwise seems to Plutarch either to overlook what is just before his eyes, or else to fight against the truth itself.

The reference made by Plutarch to the relation between divination and madness shows that the seeress was sometimes in an ecstatic condition amounting to actual insanity. He asks the question, "Why do the oracles cease to give replies?" He attributed this to the loss of proportion between the imagination and the prophetic afflatus. In proof, he speaks of the Pythian prophetess, then recently dead, to whom certain pilgrims had come for consultation. The sacrifice was subjected to the first effusion without moving a jot. Then, from excess of zeal, the priests poured on more and more, till the beast was almost drowned with cold water; but what happened to the prophetess? She went down into the cave against her will, but she plainly showed, by the hoarseness of her voice, that she was not able to perform her duties, but was possessed of a dumb and evil spirit, being horribly disordered. Running towards the door to get out, and screeching dreadfully, she threw herself violently on the ground, so that not only the pilgrims fled for fear, but also the high-priest, Nicander, and the other priests who were there. On entering the place after a while, they took her up, and found that she was out of her senses, and, indeed, she lived only a few days after.

It appears to have been a custom at one period of Roman history, at least, for the Roman ladies to have imbecile or idiotic children among their attendants or servants. "You know," says Seneca in a letter to Lucilius, "that my wife's idiot girl, Harpate, has remained in my house as a burdensome legacy. For, personally," he adds, "I feel the profoundest dislike to monstrosities of that kind. If ever I want to amuse myself with an idiot, I have not far to look for one. I laugh at myself. This idiot girl has suddenly become blind. Now, incredible as the story seems, it is really true that she is unconscious of her blindness, and consequently begs her attendants to go elsewhere because the house is dark."

Few, if any, who study the character of Caligula as depicted in the pages of Suetonius, will doubt his having been a moral imbecile, or rather an epileptic one. Insanity was hereditary, having run through many generations in his Claudian ancestors. "His health," says Suetonius, "was not sound, either as regards mind or body. When a boy he was affected with epilepsy. In youth he was sometimes faint, and could scarcely collect his thoughts or stand" (*ita patiens laborum erat, ut tamen*

noununquam subitâ defectione ingredi, stare, colligere semet ac sufferre vix posset). He was conscious of his own mental weakness, and thought it arose “de secessu deque purgando cerebi.” Juvenal believed that a love philtre administered by his mistress, Cæsonia, increased his madness. He was greatly disturbed by insomnia, for he could not rest longer than three hours in the night, and not even then in tranquil sleep, for he beheld fearful images of things, and among them a spectral form of the ocean, which conversed with him. Through the long watches of the night, therefore, weary of reclining, he was wont to rise from his couch, and, wandering through the vast corridors, would continually invoke and anxiously long for the dawn. One of his delusions was to believe that the moon was his mistress, and he would address himself to her, just as he would also frequently converse with the statue of Jupiter, and approach to its lips as though listening to the reply. When his sister Drusilla died, he made her a funeral of extraordinary magnificence, and commanded that all business in Rome should be suspended, on pain of death. “She was to bear in heaven the title of Panthea, the universal divinity; if any man dared to mourn for her death, he should be punished, for she had become a goddess; if any one rejoiced at her deification, he should be punished also, for she was dead. . . . One day at a public banquet, when the consuls were reclining by his side, Caligula burst suddenly into a fit of laughter, and, when they courteously inquired the cause of his mirth, astonished them by coolly replying that he was thinking how by one word he could cause both their heads to roll on the floor.”* We may, therefore, reasonably attribute the cruelty, lust, and evil inclinations of Caligula on the one hand, and his delusions and idle suspicions and fears, on the other, to the derangement of his mind by congenital epilepsy. For he, who so greatly despised the gods, no sooner heard the least sound of thunder than he sprang from his bed and hid himself under it. Here is Suetonius’s description of his person: “He was tall in stature, his complexion pale, his body very large, but particularly slender about the neck and legs; the eyes and temples hollow; face broad, and the body hairy. . . . His aspect, though indeed horrid and repulsive by nature, was rendered more so by art, forming a spectacle at once terrible and formidable.”

Among the Latin poets the references to madness are sufficiently numerous to authorise the conclusion that mental disorders were of considerable frequency. Thus, when Horace wished to illustrate his assertion that, if he was a dull and foolish poet, he himself was pleased and had better not be enlightened, he did so by relating the story of a monomaniac at Argos, who fancied he was hearing some excellent tragedy when in an empty theatre, and joyfully applauded it; but who, notwithstanding this delusion, could perform the duties of life with propriety, was an honest neighbour, an amiable host, a kind husband, and could forgive his slaves. He would not lose his temper when a bottle seal was broken, and he had sense enough to avoid an open well or precipice. It is not, however, the fact of his being sane on all subjects but one which Horace wishes to point out, so much as the other fact that (like a man at Athens who believed the ships in the harbour to be his) this monomaniac, when cured by pure hellebore, reprimanded his friends, exclaiming, “By Pollux, you have destroyed, not saved me, from whom my pleasure is thus taken away, and a most agreeable delusion of mind forcibly removed” (“*Epist.*” book ii. ep. ii.).

The allusion to the treatment pursued in this case, by expelling the bile and the disease together, is also of interest.†

Horace writes as any one now would write on the subject when he says that if anybody were to buy lyres and store them in one place, although quite ignorant of music or poetry; or if any one were to purchase paring-knives or lasts, yet no shoemaker; or sails for navigation, yet averse to merchandise, all the world would regard

* Charles Merivale, “*History of Rome*,” vol. v. p. 454. London. 1875.

† *Hic ubi, cognatorum opibus curisque relictus
Expulit elleboro morbum bilemque meraco,
Et redit ad sese, &c.*

him as a madman (*insanus*) ("Satires," book ii. sat. iii.). So also of a man who should pelt the people with stones, or his own slaves on whom he spent money. Such a foolish act, he says, would make all the very boys and girls in the town cry out that he is a madman.

Special worship was given by the mentally afflicted (or their friends) among the Romans to the household gods, sons, it was believed, of the Goddess of Madness. In one of the odes of Horace, Stertinius, a Stoic, advises certain persons to sacrifice a hog to propitiate them. If a man is ambitious and exalted—a sort of mania—let him make a voyage to Anticyra. "Naviget Anticyram," was a well-known proverb, referring to the hellebore for which this place was so famous, and it often occurs in the Satires of this poet.*

Again, when Horace imagines a man delighting to carry about in his sedan a pretty lambkin, clothing it, and even providing maids and gold for it, as if it was his daughter, and calling it Rufa and Rufilla, destining it to be the wife of some stout husband, Horace says, as we should say, that he is mad, and tells us what the Roman law would do in such a case, which is, perhaps, more than our law would always do, namely, that the prætor would interdict him, and order the care of him to devolve upon his sane relations (book ii. sat. iii.). Madness, he also says, must be that man's motive who should, although his beard be long, take a delight in building baby houses, yoking mice to a go-cart, and playing at odd and even side upon a long cane. Then there is the slave who ran about the streets in the morning before breakfast, crying out, "Snatch me alone from death (with a solemn vow), for it is an easy matter for the gods." Of his master Horace says that, although the slave was sound in both his ears and eyes, he would, when he sold him, mention the state of his mind, unless he wished to have an action brought against him for giving a false character.†

Lastly, the words *insanus*, *amens*, *delirus*, *demens*, *dementia*, &c., are of frequent occurrence in the pages of Horace.

References to insanity in the Comedies of Plautus are by no means few in number. For example, in "Pseudolus," act iv. sc. 7, the passage occurs, "These fellows, Harpax, surely stand in need of hellebore." In "Aulularia," or the Concealed Treasure, Enclio, a miserly old Athenian, who wishes to examine a pot of gold which he found in his house, turns out an old servant for fear she should observe him. In her soliloquy she wonders at his strange behaviour, and cannot conceive what misfortune or insanity has befallen her master. "I' faith, I know not what craziness does possess this man." She says he is on the watch whole nights, and all day he sits at home like "a lame cobbler" (Riley's Plautus, vol. i. p. 377).

Take another instance of his familiarity with the symptoms of Insanity. In the "Captives," a man of wealth, Hegio of Ætolia, is the father of two sons, one of whom has been carried away into slavery by the men of Elis. The Ætolians had also some captives, so that Hegio, hoping to redeem his son, traffics in prisoners, and purchases one, Philocrates, with his servant, Tyndarus, who in the end turns out to be the son who had been stolen. They, however, change their clothes, Tyndarus pretending to be the master of Philocrates. The latter is then sent by Hegio in this character to Elis, to be exchanged for his son Philopolemus. But when he has departed, Hegio goes to some other captives and asks if any one knows Philocrates. One of them, Aristophontes, says he does, and therefore Hegio brings him in to speak to him. Of course the servant (Tyndarus), who is pretending to be the master, is horrified, so he hits upon the device of trying to convince Hegio that Aristophontes is a madman, and his opinion, therefore, worthless. "This person," says he, "was accounted a madman in Elis. Don't you give ear to what he prates about; for at home he has pursued his

* Lib. ii. 3, 166. See also "De Arte Poetica," v. 309. ("Si tribus Anticyris caput insanabile," &c.) and "Sat.," lib. ii. iii. v. 82, &c.

† In this satire Damasippus, in a conversation with Horace, proves this paradox of the Stoic philosophers, that most men are actually mad.

father and mother with spears." Again, "His eyes strike fire," and he adds, in accordance with the belief of the ancients, "Black bile is disordering the man." The madman retorts that "black pitch will be disordering him if his master is wise" (*i.e.*, that he will be tarred and burnt). The belief in demoniacal possession comes out in what follows: "He's now talking in his fits of delirium; spirits are in possession of the man." Aristophontes, who is in a great rage, induces Hegio to go aside with him, and convinces him that he is not mad, and that Tyndarus has been imposing upon him in professing to be the master. Hegio is indignant to find he has got a worthless slave, and to think that when he goes into the Forum people will say, "That is the clever old gentleman who had the trick played upon him." The unfortunate Tyndarus is sent to the stone quarries in chains, and afterwards Philocrates returns, bringing Hegio's son Philopolemus, and the slave who had stolen the little son, to Elis. He had, it turns out, sold him to the family of Philocrates, and Tyndarus, being the lost child, is of course recalled by Hegio from the quarries, the slave taking his place.

But enough has been said to show the familiarity of the ancient world with the aberrations of the human mind, and to indicate the growth in the medical treatment of the insane and epileptic. We might have added largely to our illustrations had our object been to give an exhaustive account of the madmen and madwomen of antiquity. As we do not aim at completeness, we have omitted Cassandra, whose psychological study would occupy as many pages as we are devoting to this sketch, and we have deferred the examples of epidemic insanity, as the daughters of Proetus, treated by Melampus with hellebore, and the Bacchante, to another article (*see* Epidemic Insanity). We have not touched on India, for the same reason. On these aspects of the subject Professor Tamburini will write an article.

One general observation is warranted by a study of the treatment of the insane by more modern physicians up to the nineteenth century—that is the total absence of any original departure from the beaten track in which they had moved. Had men like Cælius Aurelianus arisen, with open minds and actuated by the humane feeling which characterised his directions, there would not have been the dreary record of European medical neglect or ignorant treatment of the insane which astonishes and provokes any intelligent student of their history. During the fourteenth and fifteenth centuries the monks had more to do with lunatics than the doctor. Superstition held sway, and the belief in demoniacal possession led to modes of cure in accordance therewith. The early history of the colony of Gheel illustrates mediæval ideas. The scant references to mental disorders in the writings of the physicians who flourished in these centuries show how little attention they paid to them. In the sixteenth century Paracelsus has a little to say on the subject. The insane man is he in whom the mortal and the immortal, the unreasonable and reasonable soul, do not appear in normal proportion and strength. Men who are disordered in consequence of the mind becoming weakened, are termed "dements;" on the other hand, those are called fools and senseless (*unsinnige*) who are mad in consequence of excess of the animal nature, because they have drunk, as it were, more of the astral wine than they can digest. Both follow only the innate animal intelligence; with the distinction, that the fools appear as animals with unchanged senses, while the excited and senseless appear as mad animals. What the fools do is animal cunning, dexterity, and a certain reasonableness; with the senseless, on the other hand, and those deaf to reason, there appears, instead of this, mere aberration.

This is the sort of stuff which one meets with in Paracelsus. Felix Plater, the professor in Bâle, who died in 1614, is said to have been the first to attempt to classify mental disorders. His first division is "imbecillitas mentis;" his second, "consternatio mentis," and includes excessive sleep, apoplexy, epilepsy, convulsions, catalepsy, and ecstasy; the third, "alienatio mentis," comprising stultitia, temulentia (inebriety), erotomania, melancholia, hypochondriasis, mania, hydrophobia, phrenitis, and St. Vitus's dance. The last division is "defatigatio mentis," comprising insomnia. We are not aware that he made any observations on the treatment.

The history of Witchcraft shows that many of those who were tortured and burnt to death at the stake were in reality insane. It is unnecessary to pursue this melancholy aspect of our history here, as an article in this Dictionary is devoted to witchcraft.

Daniel Sennert, a professor in Wittenberg, who flourished between 1572 and 1637, appears to have been a man who, although he could not free himself from the prevalent belief in witches, wrote sensibly in regard to the forms of insanity, of which he made two great divisions, melancholia and mania. The former he defines as "delirium or deprivation of imagination and reason, without fever, with fear and sadness, arising from dark and melancholy animal spirits, and occasioning corresponding phantoms." He speaks of those melancholics who believe themselves kings and princes. Mania he describes as a delirium or deprivation of imagination and reason without fear, but, on the contrary, with audacity, temerity, anger, and ferocity, without fever, arising from a fervent and fiery disposition. The maniac imagines things which are not, and knows no distinction between what is honest and shameful, good and bad, friendly and inimical. He believed that maniacs evacuated stones, iron, living animals, &c., which could not be produced in a healthy body, but were caused by demons. Nothing, however, is to be learnt from Sennert with regard to treatment, as he only repeats the customary directions to bleed and purge. Helmont placed the seat of the soul in the stomach, and contrasts, therefore, unfavourably with our own countryman, Thomas Willis, who stands prominently out in the seventeenth century as an anatomist who was probably the first who distinctly recognised the relation between the brain and mind. He is without doubt, as Laycock says, the father of modern cerebral physiology. He sought to discover the mental functions of the brain, or the canals through which the "animal spirits" flow when psychical activity is present. He strove to prove that these spirits were secreted in the cortex, and transmitted thence through the white substance to the nerves of the body. He is regarded by the same author as the forerunner of Gall and Spurzheim, who, in spite of their unquestionable errors in detail, grasped and emphasised so forcibly the great truth that, as the cerebrum is the organ of mind, the healthy action of the latter depends upon that of the brain. Hence a rational doctrine of a physical basis of mental pathology became possible, and logically a rational treatment of the insane also. Prochaska in 1784 wrote thus: "Hitherto, it has not been possible to determine what portions of the cerebrum or cerebellum are specially subservient to this or that faculty of mind. . . . We think, with Haller, that no light can be thrown upon it in any other way than by a careful dissection of the brains of fatuous persons, apoplectics, and such as have other disorders of the understanding" ("Dissertation on the Functions of the Nervous System," translated by Thomas Laycock, M.D., p. 446).

Our own Sydenham touches lightly on mental affections, but with his accustomed acuteness. He noted that there was a peculiar form of mania occasionally following long agues, especially if they be quartan. It was not relieved by his usual remedies. He administered strong purgatives, but the patient lapsed into fatuity, which continued until his death. We may form an idea of his ordinary treatment of the mental disorders he was called upon to treat by his observation, "The other forms of madness are mostly cured by means of copious evacuations, blood-letting, and catharsis." He remarks that no one will wonder at this difference when he considers that whilst one form of madness arises from an exalted and over-vivid *crasis* of the blood, this is produced by its debility, and (if I may use the term) its *vapidity*." Sydenham's adhesion to the current doctrine of the animal spirits to which Willis directed his attention, comes out when he gives the pathology of the disorder. A protracted fermentation introduced by the intermittent fever disabled the animal spirits from performing their functions. This sagacious physician adopted, therefore, a generous cordial,* three times

* This included Venice treacle, which contained the flesh and broth of vipers, amber, and sixty-one more ingredients, in Canary wine and honey.

a day, rest in bed, and a somewhat liberal drink. Then he confesses that there are some manias, not arising from ague, which also require this treatment, cases originating "in cold and infirm temperaments." He relates how he had been called to Salisbury, in consultation with his learned and dear friend Dr. Thomas, about a lady whose faculties were seriously impaired. "Although she was pregnant, I used the above-mentioned remedies, and she recovered." It would have been well had he extended this generous treatment to many more cases, but he hastens to warn the reader that the common sort of madness which befalls healthy men, and which is not preceded by any kind of fever, is wholly of a different breed from these cases, and to be treated on wholly different principles, though remedies restorative to the animal spirits should not be omitted. And what was his treatment of ordinary mania? Young subjects were to be bled, if of a sanguine habit, to the extent of about nine ounces, on two or three occasions, with three days between each bleeding. Afterwards, blood must be drawn from one of the jugulars. A caution is given not to exceed this depletion, or idiocy rather than recovery will be promoted. A course of purgative pills followed—the colocynth and scammony pill of the London Pharmacopœia, 1650. Thus, Sydenham assures us, "the humours, which in mania would invade the citadel of the brain, are gradually drawn off towards the lower parts, a fresh bias being given to them." On the days when the patient did not take the pills, he was to have an electuary composed of conserve of monk's rhubarb, rosemary, candied angelica, and other pleasant ingredients ("Works of Sydenham," Syd. Soc. vol. i. p. 95).

It should be recorded that a departure from the beaten track of treatment was made in 1667, in Paris, by Denis, who employed transfusion of blood in the case of a young man who became insane after an unhappy love affair. The blood was taken from a calf. On the following morning he was less insane. Encouraged by this success, the remedy was repeated. The result was very satisfactory as to his mental condition, but a high fever set in, a few months afterwards, which ended fatally. Although an action was brought against Denis, it was admitted that the patient recovered his reason, and he was obliged to visit Prince Condé and the professors of the medical school in Paris in order that they might see for themselves that he was sane. No wonder he became feverish.

At the same period the Philosophical Society of London discussed the question, and it was proposed to perform the operation on a patient in Bethlem Hospital. Drs. King, Coxe, and Hook were appointed to arrange the matter with Dr. Allen at Bethlem. but, as many objections were raised, the Society requested Dr. Allen to consult Drs. Baillie, Clark, and others, with the result that the operation was not performed.

We are not aware that the operation was performed at this hospital until about 1879, when we witnessed M. Roussel, of Paris, perform it upon a young man labouring under melancholia *cum stupore*, but unfortunately without any benefit.

That no small interest must have been felt in mental disorders in the seventeenth century is shown by the number of dissertations upon them. In addition to important medical works in which insanity is treated of, we have found the titles of about 150 Latin treatises written in Europe. Among books which have become extensively known. Burton's "Anatomy of Melancholy" is the most remarkable; nearly all the others have been forgotten.

We have spoken of Willis the anatomist. We must now speak of Willis the "ecclésiastique respectable," as the author of an article in a French journal* in 1796 termed the remarkable man to whose care George III. was consigned. Less generally known is the course he pursued in treating a considerable number of private patients in Lincolnshire, at a small village called Greatford. The nucleus of a private asylum originated here, but, in the first instance, patients were located in the houses of the villagers, one or two residing in a house, a larger number not being permitted

* "Bibliothèque Britannique" (t. i. "Littérature"), 1796.

without a licence. It is stated that there were as many as 200 patients thus lodged in this village in the above-mentioned year, but we doubt the accuracy of this statement. In his own house some twenty patients resided. Willis at seventy-eight years of age was so active as to enjoy the pleasures of the chase; to ride on horseback to London in one day; to occupy himself in agriculture, and to preach every Sunday in the parish church. This vigorous old gentleman, his wife, and three sons constituted the family home at Greatford. Maniacal patients were allowed a considerable amount of liberty, each having an attendant, whose vigilance was secured by the ingenious rule that, if the former escaped, the wages of the latter ceased, while the expenses incurred in consequence of the escape were placed to his account!

The patients paid one or two guineas a week for their board and lodging. It was boasted that, out of ten patients placed under care within three months of the attack, as many as nine recovered, a statement which must be received *cum grano*, seeing that on cross-examination he was unable to substantiate it by statistics. His treatment included long walks, even when the patient's legs were being blistered—a favourite application. In dangerous cases the *gilet de force* was resorted to. Occasionally it was thought necessary to secure the patient with cords. If he struck his keeper the latter did not scruple to return the blow, the justification of which was that “the sentiment of fear is the first, and for a long time the only means by which the mind of a maniac can be influenced.” It was thought that “when the maniac fears, he commences to reason more justly, to connect certain effects with certain causes, and to judge the future by the past.” This appeal to fear was regarded as “the first essential step to take in his treatment.” It is supposed that Willis acted upon this principle when he attended his royal patient; but whether this is true or not, he applied his favourite remedy, a blister to the legs, with the effect, however, of only causing irritation. The strait-waistcoat was applied when necessary. One of the attendants, at least, acted in a similar fashion to those at Greatford. Dr. Paul, of Camberwell, informs the writer that one of the King's attendants stated to him that he was witness to the fact of another “keeper” striking his Majesty, and knocking him down as flat as a flounder. The importance Willis professed to attach to the Peruvian bark in the treatment of the insane, came out in the evidence he gave before a Committee of the House of Commons. He supported his opinion by stating that the King “had certainly been gradually better from the first six hours of his taking it.” Sheridan ridiculed this statement by saying that when he heard Dr. Willis assert that his physic could in one day “overcome the effects of seven and twenty years' hard exercise, seven and twenty years' study, and seven and twenty years' abstinence, it was impossible for him to keep the gravity fit for the subject. Such assertions put him in mind of those nostrums that cure this and that, and also disappointments in love, and long sea-voyages.” The point of this sarcasm lay in the evidence Willis had also given that the royal patient's insanity was due to “weighty business, severe exercise, too great abstemiousness, and little rest.” Dr. Ray, in citing the above, comments unfavourably upon the doctor, as follows:—“The fact that the Peruvian bark was determined upon in the consultation of the whole corps of the King's physicians, and that no other observed any improvement in his condition, gives additional pungency to the ridicule, while the whole incident throws much light on Willis's character.” “It is obvious,” he adds, “that Willis was a bit of a charlatan, and not always above the arts of that character.” It must be granted, however, that the Court physicians did not display any greater knowledge than he did in the treatment of the King, and the inference is inevitable that the disgraceful neglect of the study of mental disorders left the medical faculty in a condition of ignorance of their symptoms and treatment which rendered them unable to take the lead in the enlightened treatment of the insane in England. Nor was it to be expected that these physicians would shine when brought into conflict with his strong natural acuteness, facility of resource, and sagacity. It is noteworthy that on the occasion of the examination of the physicians by a Parliamentary Com-

mittee in consequence of the King's subsequent attack, when Willis was not called in. Sir Everard Home stated, that when his royal patient refused to be bled, he applied leeches, and would have bled him *till he fainted* had he been permitted.

There can be little doubt that the intense interest excited by the madness of George III., aroused a general feeling in England in regard to the management of receptacles for the insane, and commiseration for their miserable lot. Burke was not the only statesman who visited what he described as the "dreadful mansions where those unfortunate beings were confined;" though few, perhaps, could have said, as he did, that they had made themselves masters of the subject and had turned over every book upon it. Although, however, such feeling was aroused, and Parliamentary Committees became familiar with many of the questions connected with insanity, and the condition of the insane was discussed, legislation was of the feeblest description. Pitt, Fox, Wilkes, Lord North, and others sat upon a Committee of the House of Commons in 1763, to inquire into the state of private madhouses, but, although the Committee resolved that the condition of the insane required the interposition of the Legislature, no action was taken until the lapse of many years. Dr. Pargeter, in his "Observations on Maniacal Disorders," published in 1792, records that beating was a practice in use not only in former times, but that authors of very late date had countenanced such unnatural and brutish violence. Chains and cords were, he says, frequently employed. He knew an insane patient whose legs had been tied by the attendants with cords. On their being removed, it was found that they had so lacerated the integuments, tendons, and ligaments, that gangrene took place.

Happily for the insane world, a revolution in the method of treating a neglected and *misunderstood disease* was initiated in France, the effects of which were as remarkable as the contemporary revolution in the government of sane people. The more the character of Pinel is studied, the more it will be admired. The importance of his noble and courageous work demands a separate notice. Had the late lamented Dr. Achille Foville been living, the task of writing it would have been in his hands. Failing him, we have induced his nephew, Dr. Parant, well known for his contributions to psychological medicine, to undertake the article, and it will be assumed that the reader acquaints himself with this often told, but never to be forgotten, story.

If we are disposed to regret that the remarkable experiment which was being tried in Paris was unknown in England till years had elapsed, it is perhaps all the more interesting that a reform in the management of asylums should have originated in this country independently and almost simultaneously. Humane instincts prompted the amelioration in the deplorable condition of the insane alike at the Bicêtre and the York Retreat. In the latter instance the abuses existing in the old asylum of the city led to the projection in 1792, of an institution which it was hoped could be managed without inhumanity, without chains, and with as much of home-like environment as was consistent with safety to the patient, and those who took him in charge. It is not the writer's intention to narrate the history of a reform which, humble in its conception, comparatively small in its area, unobtrusive in its course, was nevertheless destined to surpass in its success the most sanguine expectations of its projector and the friends he gathered around him, and to slowly but surely effect changes in the lunacy laws, and in the mode of treating lunatics, which are felt up to the present day. The relative position of the French and English movements, and the chief actors in the scene, have been so clearly grasped by the distinguished Professor of Medicine in the Glasgow University, Dr. Gairdner, that we prefer giving his luminous description to anything of our own:—

"As if to show that, historically speaking, the improved treatment of the insane was not the result of any single, and of any exclusively national impulse, we have the very curious fact that in the last decade of the eighteenth century the attention of Europe was startled by two perfectly novel experiments—the great reform at the Bicêtre by Pinel, and the closely corresponding but perfectly independent movement by William Tuke, which issued in the founding of the Retreat at York. No two men

could possibly have been chosen out of all Europe at that time of whom it could be said more truly that they were cradled, and nursed, and educated among widely differing social, political, religious influences—the one a member of the Society of Friends in England, the other a child, if not a nursling, of the French Revolution. Tuke had to work his way amid obstacles, no doubt, but in an atmosphere predisposed to philanthropic ideas and devoid of political passions. Pinel had to take his orders from Couthon, fresh from decreeing the abolition of monarchy and the sovereignty of the people, ere he could loose the fetters of a single lunatic in the Bicêtre. Yet in this particular matter Tuke and Pinel were possessed by one and the same idea, and worked it out as though it were an inspiration. And an inspiration it was, without doubt, if we are to believe in an overruling Providence in history at all. For it must have happened often enough before that good men and true must have had misgivings, and even shuddered in their secret souls at the cruelties practised upon the insane. But now the fulness of the times had come, and by a twofold experiment, carefully and deliberately conducted in France and England, a latent and all but forgotten truth was to be gradually brought into the full light of civilisation, viz., that the unsound mind, like the unsound body, can only be regarded as an instance of disordered function; and that however great the disorder, the functions are still there, and may be roused into more or less healthy activity by exactly the same physiological stimuli and motives as are available in a state of health. ‘*Vous voyez,*’ writes the Swiss physician Delarive, visiting the Retreat at York only two years after it was opened, ‘*que dans le traitement moral on ne considère pas les fous comme absolument privés de raison, c’est à dire, comme inaccessibles aux motifs de crainte, d’espérance, de sentiment, et d’honneur. On les considère plutôt, ce semble, comme des enfants qui ont un superflu de force et qui en faisaient un emploi dangereux.*’ In other words, the insane, who had long been regarded as mainly objects to be restrained, governed, and as far as possible kept out of sight, nay, even to be regarded as ‘*possessed,*’ *i.e., not* human, but in a very sadly real sense out of the pale of humanity, were to be deliberately and in the fullest sense re-admitted within the pale, and even treated with more consideration than others on account of their infirmity” (Presidential Address before the British Medico-Psychological Association, 1882).

The old and miserably conducted York Asylum and Bethlem Hospital formed the two most notorious examples of the ideas and flagrant abuses only too prevalent in the early part of this century, and served to force the Legislature to seek to remedy, as much as lay in its power, the evils which had been brought to light and cried aloud for reform. Had it held its peace, the stones themselves would have called out.

No historical sketch of the insane should omit a reference, however brief, to Bethlem Hospital, so familiarly known, not only in Britain, but throughout the civilised world, as “*Bedlam.*” It has passed through three geographical stages—first when it was a Hospital or Priory in the parish of St. Botolph without Bishopsgate, secondly when it was in Moorfields, and thirdly when situated on its present site in Lambeth. The first hospital was the Bedlam of Sir Thomas More, Tyndale, and Shakespeare, who uses the word six times in his plays. More described a lunatic thus:—“*All be it he had bene put up in Bedelem, and afterward by beating and correction gathered his remembraances to him to come again to himselfe, being thereupon set at liberty, and walking aboute abrode, his old fansies beganne to fall againe in his heade.*” The second Bethlem, that of Hogarth, ended in disgrace in 1815, the absurdly antiquated medical treatment and the actual inhumanity practised there deserving no better fate than that of the Bastille. The third Bethlem, although for some years a great improvement on its predecessors, was far from creditable to its governors and staff. But a change came. For the last forty years it has advanced rapidly, and has for some considerable time been an honour to the land, a school of medicine, and the means of conferring an enormous amount of benefit upon those who enter its kindly portal and enjoy the advantages of the skilful treatment pursued there.

Gardiner Hill and Charlesworth introduced at the Lincoln Asylum the system

known as "non-restraint." It was a gradual work, culminating in the formal abolition of restraint in 1837. Every friend of the insane should feel thankful to these men for the humane course they pursued and the attention they drew to the evil of the excessive resort to mechanical restraint, then too frequently practised, in spite of the great advance which had been made in the management of British asylums. To a still greater degree were instruments of restraint employed on the Continent. Logically, "non-restraint" should end in the abolition of stone walls, but, though the name attached to this system is unscientific and illogical, the excellent work which has been done by men who have worked under its banner has redeemed it from the errors of nomenclature and many of the evil consequences of extreme views.

To Dr. Conolly, who became the ardent apostle of this system, we ought to pay the homage to which his labours so justly entitle him. He, in the height of his fame, generously accorded the meed of praise to those who had preceded him at the York Retreat and at Lincoln, and had paved the way to his extended field of labour at the Hanwell Asylum, where his memory should ever be cherished with gratitude and affection. Iconoclastic in his crusade against every shred of an habiliment bearing the semblance of restraint, he may be forgiven if he in some instances, like the Puritan soldiers of Cromwell, too ruthlessly destroyed what subsequent experience in this and other asylums has shown may be exceptionally resorted to with advantage to the patient, and in just consideration of the equally valuable life and limbs of the attendant. Even the stomach-pump was to him an abomination. To the system of "non-restraint" we shall return in the article "Therapeutics." All we desire to do in this place is to express our admiration of the man and the asylum-physician, based on personal acquaintance and on a knowledge of the admirable work he accomplished. He who fails to recognise this must be either prejudiced or very ignorant of asylum history during the last half-century.

The history of legislation in the interests of the insane in Britain marks the various stages by which the desired end was ultimately attained. In after-years the grand agent by which, under many adverse influences, the insane were protected and suitable provision made for their care was the good Earl of Shaftesbury. As too often happens, the pendulum has swung so far in the opposite direction as to occasion injury to the class which it was intended to benefit, while it has enormously and needlessly increased the labours of those who are responsible for their care and treatment. So long as the wise counsels of the philanthropic Earl were followed, legislation for the insane was restricted within judicious bounds, but he was unable to check the torrent of mischievous meddling which arose, professedly as the logical completion of his own work, but which he honestly thought marred and distorted it.

This rapid sketch of the insane in ancient and modern times, supplemented as it will be by various articles in this Dictionary, including notices of the movements for the betterment of those deranged in mind, in the various countries of Europe, as also in the United States, will show the march of events to have been in the same direction, although as a matter of fact in very different degrees. In short, it has been marked on the whole by steady development in the lines of Humanity and Scientific Knowledge.

THE EDITOR.



PHILOSOPHY OF MIND.

THE term "Philosophy of Mind," formerly the familiar designation in this country for an account, conceived in a scientific spirit, of the principal facts and laws of mental action, together with wider references to the ultimate grounds of knowledge, things, and events, has of late years rather fallen into disuse,—an orderly description of the contents of subjective consciousness being styled *Psychology*, while fundamental questions of thought or being are reserved for *Metaphysic* or *General Philosophy*. Nevertheless, there is some advantage, and no clear impropriety, in retaining the older term; for it serves as a perpetual reminder that Mental Science cannot ignore, as Physical Science can, certain problems that have always been regarded as essentially speculative, or philosophical.

For instance, *Psychology*, as an account, descriptive or explanatory, or both, of mental modifications, is inevitably losing that purely subjective character that was wont at once to define it and separate it from all natural sciences, and is being transformed into what would be more correctly styled Psychophysics. The existence of this mental-bodily or dual science suggests a speculative problem of no slight difficulty, viz., how the relationship is to be rationally interpreted—some conception thereof being implicit in any treatment of the facts themselves. Again, if empirical psychology may pass lightly by the *unity* of conscious life, yet no thorough investigator will fail to note the existence of a problem, and may even be strongly moved to find a place for its discussion.

While saying thus much, however, in vindication of an enlarged view of mental theory, no occasion must be given for confounding real boundaries. Physic and *metaphysic* must be kept wide apart. Observation and experiment must have done their utmost before it is permitted to speculate; and even then the region of experience must be exhausted before recourse is had to *entia rationis* as hypotheses, whose claim to acceptance rests on the sole ground that they render ascertained facts coherent. The reason of the still very imperfect condition of psychology is to be found quite as much in the neglect of these precautions as in the complexity of the phenomena.

The theory of our mental life is so large a one that it will not be possible to do more in a short article than state certain leading principles that appear warranted by the general drift of research up to the present time, taking care to observe an attitude of rigid impartiality in a region where one-sided dogmatism has been only too much in vogue. Let us first try and understand, then, what we mean by

Science of Mind.

We have already said that psychology is rapidly becoming psychophysics, and by that we mean that no study of mind is possible at the present day that does not proceed on the assumption of a thorough-going correlation of mental functions and nervous processes. There are either two sets of phenomena, heterogeneous but concomitant; or one phenomenon, describable in two forms of language, according as it is regarded as strictly limited to the individual, or as capable of becoming a portion of universal experience. Whichever point of view be deemed the truer, we cannot ignore the duality, be it separable or inseparable. We see at once, then, why psychology is marked off from physiology. The standpoint of the physiologist is unitarian. His object-matter is never a two-sided fact, but single. His task is to elucidate the physical functions of a physical organism. Otherwise, the psychologist; for though, as metaphysician, he may hold that there is only one reality, termed matter, its psychical aspect

in manifestation affords him an object of inquiry which cannot be forced within the limits of neurology, however advanced. The *inwardness* of experience is *sui generis*, though equally the subject of law as the world accessible through external sense.

The student of the inward life, having made good his title to a place in the scientific army, is sometimes tempted to claim a position of independence which cannot be allowed. The error is a natural one, but none the less unfortunate. Seeing that the physical inquirer not only may, but must, disregard the knowing subject, with his prepossessions and personal equation, if he would constitute knowledge single and objective, he is apt to rush to the conclusion that *e contra* the external is dispensable to him, and that no real aid, but rather confusion, results when he steps beyond the self-enclosed circle of consciousness. In fact, until quite recently this has been rather the rule than the exception; for even when a certain superficial regard has been paid to the larger laws of life in general, to nerve connections and processes, this has been done rather as a condescension to popular requirements than on ground of principle. The error is exposed when we inquire what biology there could be without vital things, or what physiology without anatomy. Function is correlated with organism—what is the mental organism that answers to mental function? There is no such organism that is not inextricably entwined with the bodily organism—no spaceless and unresisting Psyche answering to the psychical.

It is of the first importance that the real state of the case should be well understood, as the view taken of the nature of psychology affects the question of the method of investigation, and therewith inevitably the character and sufficiency of the results arrived at. If psychology be regarded as a special department of physiology—the theory of nervous activity in an intensified, concentrated, and complex form, attained by the methods appropriate to all branches dependent ultimately for premisses and verification on external observation, then it is plain what will be the scientific outcome—a body of truths of extreme importance as the most refined branch of molecular physics, but no science of living mind. If, on the other hand, the subjectivist essays to construct, out of data interiorly apprehended, a doctrine of spiritual activity, with complete detachment from all conditions and occasions foreign to consciousness, then, however trustworthy his materials and undeniable his ideal sequences, both quantitative precision and real causality will be lacking—those essentials of genuine science. In neither case have we a science of mind, and a divorce is made between facts inseparable in the unity of Nature.

Method and Conditions of Psychological Inquiry.

But a compromise of convention equally fails to meet the requirements of the case. To imagine two sets of phenomena, having distinct laws, never coming into real contact, concomitant but without *nexus*, is inadequate. Physiologist and subjectivist cannot come to terms by merely flinging down their contributions side by side. The natural datum is, that there is *one* fact, but two ways of envisaging it. We can either begin with that which is given in self-consciousness, and feel and see the self-externalising in muscular activity, or we can plant ourselves imaginatively beside the outwardly revealed organism, and awake to consciousness with the physical irritation of such organism. It is possible to cavil at the term “self-observation,” as implying a partial and contracted inward life; but, whatever the appropriate rendering, full justice must be done to the contents of subjective experience. There is such a thing as self-knowledge, otherwise there would be no knowledge at all; and the only disputable question is, whether the sequences revealed in consciousness are adequate for their own explanation, whether science can be got by way of self-consciousness alone, not whether we can know what we know and know that we know.

There are difficulties certainly in the process of noting and collecting the contents of consciousness, but they may easily be exaggerated. Scepticism with regard to the adequacy of memory will make havoc not only with our subjective belief, but also with

our objective truth, for trust in memory is implied in every variety of perception. Introspection is of most avail at the two termini of mental life. For sensation we have no other criterion than self-consciousness. Here knowledge is absolute, but also, too, least significant. Sensation has no value on its own account, but only as forming an element in a more complex state. At the other end of the scale, in our highly representative mental acts, methods of external research carry us but a very little way, and we have to fall back upon reflection and subjective analysis. But it is doubtful whether, even in this most secluded laboratory, the worth and bearing of the products are recognised until they take form and shape in utterance and outward action. It is doubtful if thought in the strict sense is possible without language, and language is a psycho-physical phenomenon. So, too, the sentiments, æsthetic and moral, can hardly be said to exist before the work of art, or the unjust or heroic deed. As introspection at the best is merely observation, it is only to be expected that, wherever an opening for experiment is found, an opportunity is afforded of obtaining precise and definite results. Such experimentation is either artificial or natural: in the one case as in the researches now being carried on in certain psycho-physical laboratories, where degrees of sensibility, the rapidity and duration of thought and feeling, are measured; in the other where physical disease suspends or deranges mental powers. In both respects psychology has been considerably enriched of late, and it is not possible to forecast the gains hereafter to be garnered. It is indeed surprising that students of Mind have been so slow to apprehend the potency of the experimental method, seeing that its application to the problems of the physical world has long been regarded as the distinguishing characteristic of the modern compared with ancient scientific inquiry. The older equivalent was abstract or ideal analysis, a method which unfortunately lends itself all too easily to the service of prepossession and foregone conclusion. Experiment is humble too, and does not despise small things—a quality which is not seldom rewarded by unlooked-for glimpses into new realms of knowledge. Mr. Galton's simple appeal to the hitherto incurious, to test their visualising capacity by essaying to recall their morning breakfast tables, suggested a line of investigation that may supersede much talk on the subject of the reproductive imagination; as the same inquirer's acute analogy of the truncated image in conception to the composite portrait, resulting from superposed impressions of numerous visages on the same photographic plate, may throw a flood of light on the wrangle of the schools on the vexed question of nominalism and conceptualism; while such apparent trifles as recording the time taken to respond to a preconcerted signal may go a certain way to settle the world-old puzzle of the freedom of will.

If we turn to the other kind of experimentation—Nature's own method—we may look with hope to the unravelling of many strange mysteries. The abnormal is also natural; and, in accordance with the dictum that the knowledge of contraries is one, we should not expect full enlightenment on the workings of the sane mind until we had perceived the operation of such mind when released from the vigilant control of the will, and diverted from its healthy course by excess or defect of congenial aliment.

It would, however, be an error of the first magnitude to stop with the individual subject, as if the nature of mind could be made clear by any prolongation of introspection or copiousness of well-devised experiments. An individualistic psychology, aided by all the resources of the physical laboratory or clinical experience, would be but a maimed and incomplete psychology. Mind cannot be comprehended without a study of its development, and the development of mind implies the action and interaction of *minds*. We realise at once the difference between a strictly individualistic psychology and general psychology when we compare animal with human psychology. Why is there so great a gulf between the two? What is the specifically human in the mind of our own race? The bodies of brute and man are fashioned on the same plan; there is no region of the brain absolutely wanting in the highest brute, nor defect of internal structure. And yet there are superadded powers that acquire ever more importance as the higher members of our race are reached. The reason is that,

as man progresses, the interior life dominates the exterior to so great an extent that it has appeared self-evident to not a few perplexed students that nothing short of a new indwelling principle is competent to explain the advance. The assumption is premature; but it at least may serve as a warning to restrain the extravagance of another extreme school, which seems to regard as equivalent physiological psychology and mental science. Because we hold that mind as known to us is *embodied* mind, it by no means follows that the foundations of mind are to be sought in the individual organism alone. To the more subtle phases of mind social history is the only key; and the institutions, the spiritual products, the manners and customs of man at various stages of his growth alone render intelligible many ways of thought and action of the civilised mind. One may not venture farther on this path, for the reason that it is yet so indistinctly recognised, and almost unappreciated in accepted treatises. That it is so unrecognised is the main reason why the philosophy of mind is still in so backward a condition. On the one hand we have the physiologist endeavouring to annex the whole territory of mental life; on the other, the logician, or a *priori* philosopher, formulating abstract laws of pure reason; both alike regardless of the fact that the deeper problems of psychology await their solution in a thorough study of the progressive history of mankind.

The total resources at our command, then, for obtaining an insight into the nature of mind may be thus *summarised*:

- I. Subjective observation and analysis.
- II. Artificial experimentation, chiefly by employing definite external stimuli, the subjective effects of which are objectively noted and registered.
- III. Pathology, or a study of bodily diseases with mental correlations.
- IV. The study of the growth of mind—
 1. By comparing mental development with the evolution of the nervous structure throughout the animal kingdom;
 2. By study of the manifestations of mentality in the progress of mankind from a condition of barbarism to present civilisation;
 3. By noticing the development of the individual mind in the higher races of to-day.

As regards the last division much profitable work is being done in watching the first signs of intelligence and the progress of the earliest years. Some of the above methods are so very recent, either in conception or in application, that it is reasonable to expect psychology in the next century will be a very different thing from that with which the world has hitherto been content, and will probably justify the confident assertion of the late G. H. Lewes that "its *constitution* as a science" has still to be effected. To any one, indeed, who has once comprehended what the above methods imply in their totality, the presentation of this great department of knowledge in our classical treatises must seem remarkably incomplete. There is a family likeness in the orthodox works, but the resemblance is hardly due to the fixity of established science. Rather is it a sign that the day of tradition is not passed, and that it is always easiest and most convenient to follow in well-worn ruts. Complaint, however, is easier than rectification, and in the summary statement that follows there will be no pretence at presumptuous innovation. The task before us shall be conceived as simply this—to map out the province of mental philosophy, and indicate in their abstraction what seem the governing laws in each form of mental manifestation. We may proceed in the manner of the didactic chemist, who enumerates and describes the elements of matter, and then proceeds to expound their composition. Taking the complex phenomena as they are presented in subjective experience, we may accordingly first endeavour to discover their ultimate and primary constituents. This is usually known as the enumeration of the

Faculties of the Mind.

It may at once be said that the term "faculties of the mind" is far from being a happy one. It suggests far too strongly an abstract view of the facts which we have already condemned, not to say an overt metaphysic. If the term "faculties" must be employed we should rather speak of faculties of man or the human organism. The concrete individual man possesses powers and aptitudes, but in no proper sense can the like be said of mind, however that word be understood. If we are speaking of the subjective life, "faculties" is an improper and misleading term to describe either its ultimate elements or its distinguishable forms; and there is small gain in a scientific point of view in recounting the capacities and susceptibilities of the concrete individual. For any classification of powers or capacities carries us no farther than a grouping in different ways of identical facts. Perceiving, remembering, thinking, willing, are attributes of conscious man it is decidedly useful to mark for colloquial purposes, but they are one and all complex processes, which are more or less involved with one another. To perceive is also to remember, thought involves both, and volition in the form of attention at least is a necessary ingredient of all three, and in any of its specialised forms implies intellectual acts such as the preceding terms imply. Enumeration by faculties is, then, rather of the nature of popular description than scientific analysis and classification, and it is no wonder, therefore, that there is a growing tendency to let the word itself pass out of psychological nomenclature. What is really needed is a statement of the radically distinct processes concerned in the acquisition of knowledge, and implied in our reaction upon the world beyond the organised self.

When we endeavour, then, to come down to ultimate functions, we find the following apparently distinct processes:—discrimination, assimilation, feeling, conation. Supposing, that is, the mind to be awakened to consciousness by some event in the outer world, the order of proceeding is that a specific mode of consciousness occurs, termed quality of sensation, involving a distinguishing of such mode from other modes, and identification with certain previous modes. Usually following hard on such psychical event is a mental mode we style pleasure or pain, and it is rare if there does not ensue an effort to keep the object before consciousness or to be rid of it. There is a large consensus of opinion in favour of the three* processes just indicated being both irresolvable and exhaustive—usually summarised as intellection, feeling, will.

Nevertheless, there is not a little danger of a relapse into the expiring "faculty theory" unless we are well on our guard. That way of envisaging the constituents of mind has been found wanting by supposing separation where no separation was, and taking as elementary what were really derivative. We should be still entangled in these errors if we imagined for a moment that any mental state was not really compound, or that the three phases were not really a trinity.

In thinking or knowing it is plain enough that there is exercise of will, although possibly there may be so little action that the man may be rooted to the spot; and it is certainly doubtful if any exercise of thought or cognition takes place without a ripple of that form of consciousness termed feeling. All that is meant by the triple arrangement is that consciousness of difference and resemblance is not comparable with consciousness of agreeableness and disagreeableness, nor either with that characteristic phenomenon we indicate by conation or conscious *nisus* or appetite. Pleasure and pain *quâ* pleasure and pain are *not* endeavouring; and though intellection in its more developed forms implies effort and aim, as bare ideation there is simply the flow of association in which, as far as immediate consciousness informs us, there is nothing but unmotivated succession. Thus apprehended, it is a factitious simplification to attempt to oust two or even one of the three terms, for each supplies a something that is not of necessity expressed in the others.

* The two cognition processes being inseparable are treated as one.

According to the foregoing, then, there are three great regions of mental phenomena, departments, that is, which are characterised by the predominance of either IDEATION or FEELING or VOLITION—states or operations where the energy of the sensitive and intelligent being is used up in apprehending and comprehending the matter within its ken, or is engrossed with its own condition, or seeks to change its environment. And for the purposes of description this primary classification is eminently useful. Thus under the head of Ideation we have the primary facts of cognition, which may be summed up in perception, and the secondary processes of imagination and thinking. The second group includes the innumerable varieties of Feeling, from the pleasures and pains attendant on sense-excitement to the highly compound emotions, which imply numerous experiences wherein elementary sense-feelings, perceptions, and conceptions are blended. And in the third (Volition) we have the primitive impulses, deliberative processes, choice, and resolve. It must not be supposed, however, that there is no other way in which the facts may be grappled with. On the contrary, unless care be taken, a classification which strongly reminds one of the classifications of natural history may suggest an analogy that is overpowered by differences. The difficulty lies in the unique character of psychology as a subject-object science. We have in this science, not to sort and compare so many objective facts, but to trace the evolution of self-consciousness under the constant stimuli of external influences. If the problem were accurately posited it would run somewhat like this—Given a sensitive and intelligent organism in relation to a physical and (in part) psychical environment, what experiences will such organism of necessity undergo? How, in other words, does the appropriating and unifying real being assimilate and order the material supplied from without or within? It cannot be said that this point of view is unrecognised in the conventional treatment, but it is apt to be obscured. For instance, although the exposition of laws of association may be deferred till the nature of memory is expounded, and memory is dealt with under the head of intellect, it is not to be inferred that they are inoperative from the first moments of experience; and though the phenomena of volition can be traced from the simple forms in which associative laws play an important part, it must not be supposed the will itself is not inherent in association. An analogy would be that of a tree, which puts forth its buds and branches from one same root and stem. The tree is one, a single living whole, but its branches may diverge indefinitely till they assume the distinctiveness which is expressible in the word “faculties,” or groups of mental manifestations.

Sensation and Perception.

The term universally accepted to express the most elementary form of conscious experience is sensation. By sensation is meant a subjective condition which has no mental, but only a physical, occasion. The word naturally suggests a physical occasion exterior to the body, in which the senses or sense-organs are concerned, but as the complication of the physical process is here of secondary importance, the original reference has ceased to be among the essential marks, and the scientific psychologist only retains in the definition originality and simplicity. Upon this, however, two observations must be made. A term is undoubtedly required to indicate the simplest form of conscious experience, but the primitiveness of experience is not identical with actual irreducibility. The circumstance that assiduous attention can effect analysis of much that to the untrained mind is irreducible suggests that the purity of sensation is relative and provisional, ideal not real, even if the boundary between the unconscious and the conscious be considered to be no rigid one. And, further, when we claim primitiveness for any psychical phenomenon, the whole contribution of organised aptitude is tacitly abstracted. A truly original mental phenomenon passes the limits of imagination, because it passes the boundaries of all knowledge. The material and forms of consciousness are indivisible. This implies that there is no such thing as strictly *passive* sensation; the organism, when affected

along certain sensuous paths, reacts with its connate aptitudes, and experiences no "sensation" till it has found a place for it in the spiritual fabric.

Philosophical psychologists term the ultimate of actual experience a *totum objectivum*, and hold that the method of analysis of a presented whole more truly describes the course of development than a process of gradual synthesis which, starting from certain sensations, reaches the whole of perception. We cannot properly speak of knowledge where no object is presented. This presentation of objects is termed perception, and is accordingly the first clear act of consciousness. We are so far removed from the mere animal or infant mental state that we find it hard to conceive a condition in which subject-object is not explicit. Our vaguest sensations as known are at least referred to our physical organism, although the place of reference may be vague in the extreme. At any rate, the condition is never known as mere sensation; it is an affection of foot or head or stomach; in other words, the particularising of sensation implies a place in an external world.

The percept is the first mental fact or actuality, whose analysis yields the sensations proper. The specification and classification of the ultimately distinguishable varieties of these are determined by different interests—the arrangement best suited to the purposes of the psychologist being that which keeps in view the knowledge-reference of sensation. An arrangement in strict relation to the graded objectivity of the percept yields the following results. The most external sense is unquestionably sight. That the objectivity of this sense was in its origin due to its close alliance with touch is no doubt true, but its independence has long been fully assured, and there is to the seeing man no greater hint of objectivity than points of light. No normal human being imagines colours to be in his eyes—colours are coloured objects, things which the unscientific imagine even to have an existence independent of our percipiency. The objectivity is somewhat less of the tactile sense. Supposing the body to be perfectly quiescent, it is not always possible to distinguish pressure from subjective affections of the cutaneous surface; but a very slight degree of active resistance suffices to convince the mind that there is an extra-corporeal object present. Accordingly, there is no surer test of material reality than pressure on the skin intensified by the reaction of our own organism. We rank pressure, then, next to colour as a knowledge-giving sensation. It is not in their own right, but only in virtue of association with visual and tactile sensations, that sounds acquire their objectivity; for the auditory sense is the purest example of intensive sense-consciousness, forming, indeed, our best medium for realising the idea of time. But the intellectuality of this sense is considerable in virtue of the clearness of impression, with its innumerable and fine degrees. The list of sensibilities is completed by odours and tastes, temperature, and that mass of general sensibility which enters largely into our emotional tone, but is so subjective that we never think of extending it beyond the body—the organic or systemic sensations.

In this summary of the elements of consciousness, conceived as *matter* to be worked up by experience through the *forms* of apprehension, there is one factor which has been implicitly included, but not explicitly alluded to—a kind of sensibility never normally found isolated, and with so undefined a quality that its place in the system is still in dispute—the sensation of sensuous activity, in the twofold form of effort and motility. Whatever be its precise physiological character, this psychological factor is of capital importance, for it is through effort joined with touch that we obtain the idea of resistance—that characteristic property of the external world; while motility combined with sight or touch forms the main ingredient in our notion of extension.

The course of description of the mental life properly follows the course of experience. Our mental ideas begin with being object-ideas, and pass by stages into subject-ideas. It is not that the growing child struggles, as it were, to get out of itself, and find itself in an extraneous world, then bit by bit takes this extraneous world into itself. A *totum objectivum* seemingly in real space and real time is the *naïve*

supposition of primitive mind. Gradually the more constant items of sense-experience are segregated from the more fluctuating. The systemic sensations that are always with us in greater or less intensity form the nucleus of our self; and the world comes to be parted into our own body and the complex of non-corporeal objects. Among those objects, again, we come to regard some as more essential than others, on the ground of greater relative persistency; and a reason for the distinction is found in the circumstance that the "feelings of innervation" and motility—the conscious fact corresponding to the fundamental properties of the external world—are never quite wanting. The properties constantly conjoined with these, such as colour, appear hardly less necessary constituents of the real world, whereas tones, odours, and savours come to be conceived as rather accidents dependent on more fundamental attributes.

For an explanation of the foundation of these percepts we require two pre-conditions—an extra-organic reality and fixed forms of individual apprehension—two factors which doubtless stand in no accidental relation to each other. The external factor must be posited, because there is no provision in the Ego for furnishing the matter of sensation, save in the dubious case of muscularity, or that phase of sensibility which accompanies the act of will. But it is the speciality of this mode of sensibility that it is qualitatively homogeneous, and that it is competent to nothing further than the bare form of object in general—extension and impenetrability. What it is that resists, what it is that occupies space, is just the content of the known world, is just that which we have had no hand in making. In other words, the human mind has no creative power; its function is receptive and appropriative. Along with laws of an object world there are laws of the subject world, and we can only realise, imagine, and interpret in accordance with the fixed subjective conditions. If we construe external reality as material, we have the brain with its sub-, super-, and co-ordinate centres; if as spiritual, we have the ideal forms of apprehending and thinking. What relation the outer reality has to the internal phenomena we have no means of ascertaining. Whether the stimuli affecting the sense-organs and nerves are "translated" or "transformed" into the internal phenomena, or are merely the occasions for an entirely heterogeneous phenomenon, is matter of speculation.

Ideation and Imagination.

Sense-objects or percepts occupy the field of consciousness so long as the organism is affected by extraneous influences. When these excitants are withdrawn the mental phenomenon does not at once disappear, and under certain circumstances its like may be presented after a considerable interval in a fainter form without the renewal of the external stimulus. These derivatives of perception are *ideas* or *images*. The after-percept needs no explanation, but the idea or image can only be explained as the subjective concomitant of cerebral changes identical with those which obtained on the previous occasion, when the centres were rendered active by the stimulation of afferent nerves. The temptation is great to conceive each percept to leave behind it an ectype, as it were, in the sensitive centre, which can be inwardly revealed in periods of special excitement. The sensorium would in that way resemble a complex of innumerable photographic plates, each of which preserved its spectral negative more or less distinct. Whatever supposition be made, the difficulty of conceiving the actual fact is enormous, for if the image be on every occasion a new creation, why the phantom should resemble so closely the defunct object as even at times to be mistaken for it is by no means clear. Indeed, when we try to penetrate into the laboratory of mind we usually find ourselves in no little bewilderment, and for the simple reason that analogies fail us. We have nothing parallel in objective Nature to the fact of mental reproduction, for reproduction implies recognition or self-perception of the identity of the new appearance with the old. The image is not a "copy," since that would involve the temporary co-existence of the percept and the image, for if the "copy" is taken in the absence of

the original we have only a restatement of the fact to be explained. Either the image is the percept itself, or it is a totally new creation—and it is as well that this alternative should be plainly seen.

We are not helped, but rather hindered, by the phenomenon commonly styled “imagination,” the case, namely, where we of set purpose fashion mental objects which deviate from reality, or form mental pictures to realise verbal descriptions. Neither of these processes resembles the primitive image-forming power. Their very arbitrariness divides them by a chasm from the reproductive imagination. It is the essence of this latter process that it is automatic, and voluntary effort only disturbs the operation. The way to cultivate the image-forming power is to intensify the act of perception—to look long, steadily, and frequently—then, when the cue is supplied, the image will by an unconscious mechanism start before the mental eye with definite and clear outline and characters.

The total abstraction of will is, however, rare in the waking hours, and if we would survey the theatre of mind in its completely automatic form, we must consider the dream. In the dream we have presentations, re-presentations, feelings, perceptions, images, emotions. We learn from it that the image-forming power is fundamental and necessary, for sensations *per se* are not presented; but merely subconsciously contribute to the formation of images. Further, there is no distinction drawn in the dream state between the percept and the image—the ideal objects obtruded through processes of mental association, or on the occasion of external physical stimulus, are alike presentative, alike real to the spectator and actor. What is the lesson to be drawn from this? That presentations, or concrete pictures, are the mind’s primitive and inevitable content, and that percept and idea are one and the same. Space and time, too, it may be parenthetically remarked, have the same quality in the dream as in the waking state, although the objects are not external either to the cognizer or to one another, and an eternity may be supposed to elapse in an indefinitely small fragment of a second. New presentations are never wholly new, but for the most part re-presentations, with certain parts abbreviated or enlarged. As, then, before we came to see that it is erroneous to regard sensation and perception as chronologically first and second, so, too, in respect of the percept and the image. What really happens is—on the stimulation of sense the mind proceeds to construct a mental object, which, when referred to the sentient self, is reduced to sensations, referred to the cognitive self is termed presentation or percept. But the percept in being known as this or that implies the presence of an image that is more or less familiar.

The consciousness of familiarity as regards images is what we term memory, and we must now briefly consider its special laws.

Memory.

For memory full and complete we need the following:—Reproduction of images, recognition of percepts, assignment of the recognised images to a scheme of our private history. This last condition presupposes that we have a *tableau* of important facts in our personal history suspended in the background of consciousness, in which the parts occupy positions in a successive line. We are said to remember when we assign the particular idea to its place in this succession.

As regards the primary fact of reproduction, the most general condition is the degree of attention when the impression was first received. This may have been due either to the fascination of the object, or to the amount of effort expended by the attending individual. The former undoubtedly is more potent, as homely maxims and pædagogical precepts testify. But an impression must make a rare mark in consciousness indeed to form an abiding fact in our mental life if it is unique or isolated; ordinarily, it is found that an idea needs many supports to retain its place in the mental fabric. These special conditions of retention and reproduction, styled the Laws of Association,

have received a large amount of consideration, and are usually regarded as among the most certain parts of psychological science. It is an admitted fact that in remembering an idea we can usually detect some connection between it and another at the moment or just previously in consciousness, and, when we are anxious to recollect, we cast about for some bond of relation, proceeding on what we deem likely tracks, in the hope of striking on the old idea. This is all undeniable, but when we ask what precisely is the nature of the connecting bond, divers answers are given. Orthodox psychology enounces two general laws, termed contiguity and similarity, co-equal, though not self-dependent. The former asserts that our ideas are linked together by time—that impressions and ideas, or images consciously apprehended in close proximity of time, naturally adhere, so that, if on a future occasion the impression is repeated or the image recurs, the previously co-adjacent thought or image has a chance or probability of appearing before the mental view. According to the other law, resembling ideas tend to recall one another, *i.e.*, if the resemblance overpower the diversity. But the two cases are not as dissimilar as they appear on the surface, since even when the contiguous ideas are wholly unlike, for successful recall it is necessary that the reviving idea should be identified with its predecessor. Thus, in remembering a person by his name, if the name itself were not felt to be the same name as that which was previously uttered or written, the image of the person could not reappear. *E converso*, on perceiving a resemblance, as, say, in recalling the image of an absent person from the “counterfeit presentment” of a photograph, if the original study of the actual person had been so hastily performed that the parts of the face did not form a living whole, the resemblance might haunt us with the sense of familiarity, yet we should be unable to summon before our mind the absent friend. The inworking of these principles has suggested the possibility of their fusion or inclusion in some higher unity. Thus similarity has been discharged as a principle of association on the following plea. Recognition is not association, although it is an aspect of memory. Take a glaring instance like that of the portrait and the original. The portrait reminds us of the real object, but the portrait and the object have never been together before—what have co-existed have been the parts of the original presentation. These were associated by being presented simultaneously, or in close temporal succession. Now, what happens when we see the portrait is that an impression is repeated, *viz.*, certain identical visual sensations, but the image of the absent person is suggested in consequence of the adherence of the other parts of the features, dress, &c., to the common element. In other words, resemblance is a *condition* of revival because it is a condition of reinstatement, but it is not a case of association. On the other hand, contiguity as mere contiguity is no principle of association. For why should ideas stick together simply because they have occurred near one another in time? What matter whether the interval is a fraction of a second or fifty years? Time as time is discrete, and possesses no cementing quality. Accordingly, if there is only association, *viz.*, of the *unlike*, the condition of the association must be sought in something else than *mere* temporal proximity. *Spiritually* this has been attempted to be explained by asserting for our mental life a natural articulation, which lapse of time may render obscure, but cannot destroy. Our mental life is continuity of impressions and feelings—it is an unbroken whole from first to last—and why only some parts are remembered and not others is that the intensity is so variable, owing to the degree of attention given to the ideas when actual. But if the intensity which now effects the rise of ideas above the threshold of consciousness can be irradiated into adjacent areas of past experience, large areas that have remained, perhaps for a long time, sub-conscious, can be elevated above zero point—be remembered. It is not contiguity that has to be explained, accordingly, for the contiguity is an ultimate fact, but the conditions of intensifying. This account is highly plausible, and, if it can be rendered intelligible by the needed physical supplement, may pass for a very probable hypothesis. Surely the physiological mechanism here is of prime importance. There is no continuity of mental life apart from the continuity of nervous functions,

and the existence of a sub-conscious realm is rendered doubly assured by the physical body, persistent through all fleeting mental states. But how comes it now that our various ideas are referred to a certain portion of our personal history, and why is it that we are not always confounding the epochs and dislocating the arrangement? Perhaps we are, more often than we suspect. Fortunately, however, we have many external aids to correct localisation of our experience—marks in natural phenomena and in the testimony of our fellows. For this is certain, that memory is far from being self-supporting, and that it grows in accuracy, both in depth and breadth, in proportion as the external connections are increased. The intense privacy of memory is a delusion. A physical explanation is at hand to render this clear. The recognition of ideas can be referred to recurring physical conditions—re-agitation of the same cells or nervous areas—but nerve structure and phenomena know nothing of time, which is wholly subjective and ideal. There is no *organ* of time. It is a way or form in which we order our presentations. Accordingly, nothing is so variable as between individual and individual; and in localising the various incidents of our life we draw innumerable inferences from the slenderest data.

Thought.

The formation of concrete wholes or mental pictures is the first act of apperceptive consciousness. It implies at once discrimination and assimilation, analysis and classification. The act is so little voluntary that we deem the object of sense given to us, and not constructed by our own inherently formative power. But such experience falls short of the full reach of cognitive intelligence as possessed by man. Doubtless in the process of mental evolution there was no sudden leap, but to us, comparing mind as represented by civilised man and even the highest of the brutes, there seems a chasm almost impossible to bridge by conjecture. To perceive the one in the many, as the philosopher expresses it, to intuit the type though never realised in Nature—this has been ever regarded as the high feat of human reason. The animal knows, but man alone has science. The animal distinguishes, the animal recognises, but the animal has no conception of genus and species, neither thinks nor generalises. The animal infers, but cannot syllogise. The animal, we may well suppose, can get as far as forming a general image, meaning by that a mental representation which corresponds to the act of recognition of a member of a group of closely resembling objects. The representation of a number of common properties embedded in unlike properties must leave a trace which answers to a particular picture in which the invariable element stands out prominently with a hazy and undefined outline. In all probability, however, this class-image has to be always renewed by sense-suggestion, in the absence of which it is incapable of recall.

But here is the advantage of the civilised man. In the absence of a special object, without even having recourse to an act of imagination, the man can *think* the class of objects apart from any presented or represented specimen of the class. This remarkable power is termed conception. The concept is not an image at all, however generical or typical; it is an *ens rationis*—the product of an act of comparison and attention, by which certain common qualities of a number of percepts or images are grouped by the mind, and all other differentiating qualities ignored. The nearest approach to its realisation is the general image, but, inasmuch as the general image is still concrete, whereas the true concept is abstract, there is a gulf between the two. In the concept, then, we seem to emancipate ourselves from the physical world, and leave psychophysics behind. But it is not so, for, though itself unpicturable, it derives all its significance from percepts and images. Further, it is incapable of being sustained in the mind until it has received a sense-adjunct, which serves as a constant reminder of the group of attributes. This sense-adjunct is the spoken or written word, whose alliance is so close, and whose office is so indispensable, that it may even exceed its function, and be substituted for the thought itself. The origin of language is rendered

unintelligible, however, if we look upon it as an arbitrary construction, as an intentional symbolism, for such intention would imply a degree of intellectual development which would itself require the use of language to effect—and not rather as a natural expression, an embodiment of mental states primarily emotional, secondarily intellectual.

Words, from being at first mere instinctive expressions or semi-conscious imitation, with a close relationship to physical objects and movements, gradually lose their concreteness, and become the rounded pebbles or conventional counters, such as we find in the speech of the civilised to-day. The more purely conventional or symbolical, the better for purposes of general thought, for the attention is not distracted from the conception to the sign.

In tracing the thought-process two stages are to be noted. The first is the transition stage from sensuous apprehension. The raw material of sense has been worked up into objects—presentative percepts, representative images. These now become in their turn raw material, and the mind proceeds to construct ideal objects by seizing upon the common elements of these concrete wholes, detaching the same and constructing notions. The synthesis of sensation which constitutes the thing, orange, is succeeded by a higher synthesis in which the properties possessed in common by a number of objects is styled orange, a process of synthetic elaboration which does not stop there, but is followed by further acts of comparison and separation of resemblances, until at last the highest classes are reached. Thinking, accordingly, is obliteration of differences, generalisation of agreements.

The beginning and end of knowledge, as has often been observed, is classification; but in the process of elaborating experience, which is in truth no other than progressive classification, the one same process may assume different aspects. Conception, judgment, and reasoning are terms employed by logicians to describe thinking in its various aspects. Judgment is nothing but comparison—the agreement of two objects is noted and explicitly enounced in the verbal form of a proposition. Often enough, however, the comparison cannot be made directly, and the objects must severally be compared with a common third, when a judgment of comparison is enounced as conclusion from premisses. Now, conception, or the sum of the characters of the class, presupposes direct and indirect comparisons, or judgments and ratiocinations. This real state of the case is disguised in logical treatment, where what should be the end is placed at the beginning—the judgment being treated as a comparison of concepts, and reasoning as the act of comparison of judgments. If the question be put, however, In what way are the concepts themselves arrived at which are manipulated in these relating processes?—the answer can only be, By the aid of the processes of inference, direct or indirect. It is not the task of the logician, however, to describe how we come by our knowledge—his office is to test it when found—and therefore he is apt to take what is simplest in result as earliest in experience. The analysis of ready-made knowledge does not reveal the chronologically prior—this is only attainable by watching the evolution of consciousness.

The rational function may be characterised as an effort to *comprehend*, as that of the sensitive function to *apprehend*, the world. The discovery of the laws of Nature is only another expression for the same fact. Law means a uniformity of action, and the simplification or resolution of uniformities is the only meaning of scientific comprehension. The processes of logic as theory of knowledge have this in view; and analogy, generalisation, induction, deduction, are so many phases of intellectual exertion, with the one end of co-ordinating knowledge. There is no difference in principle between induction and generalisation, and analogy is a loose species of induction. Thus analogy is an inference from superficial resemblance, where nothing is known of the more intimate nature of the objects. Induction proper, however, infers only where there is a presumption of necessary connection. In analogy mere number of properties, possessed in common by certain objects, is the ground taken for inferring the existence of a further property known only to be possessed by one of them. If, however, by experimental methods we discover dependence of the

property in question upon other properties found in each case, the inference is no longer simply analogical, but inductive, and the argument applied to all similar cases becomes a generalisation. In deduction we do not need to appeal to either observation or experiment; we have the law already within our mental grasp, and we have only to apply it to fresh cases as they occur. The process, however, by which we arrive at a general truth, and that by which we apply such truth when arrived at to fresh instances, is not as opposed as appears at first sight—for every real law, till based on experience, is an assumed universality, which acquires more commanding certainty with every application of it to yet unnoticed instances.

Thus far we have been concerned with the elucidation of that side of consciousness which is summed up in the word "knowledge." What we mean by knowing, and how we come to know, is in brief the content of the theory of presentation and representation. But our cognitive consciousness happens to be involved with quite other orders of spiritual phenomena, viz., pleasurable and displeasurable feelings, passions, desires, and efforts. We have thus far suppressed all reference to these emotional and voluntary experiences, but it is not to be supposed that they are absent even from the crudest form of the presentative life. So close, indeed, is the connection of feeling and sensation that, in common parlance, we are apt to use the terms interchangeably, or describe, with certain psychologists, sensation as the emotional aspect of what on the cognitive side is perception. There is good reason, however, for rejecting these versions, and regarding feeling as no part of the presentation or representation, but something supervening where the presentations attain a certain degree of intensity. It is only under certain circumstances that a presentation comes to possess an emotional tone—a tone which is apt to be lost when the presentation is unusually prolonged.

Feeling.

The natural classification of feelings is based on the degree of representativeness of the underlying cognitive fact. At the bottom of the scale, accordingly, will be ranged those simple forms of pleasure and pain which, on account of their arising in connection with the simplest presentations, we are wont to term "corporeal." Such are the feelings accompanying the exercise of the "chemical" senses of smell and taste, the relish and disgust connected with alimentation, and the child's delight in loud sounds and brilliant colours. There is a higher grade of feeling where the feeling attaches itself to perception, implying a certain compared relation, as in the pleasures of harmony and pains of discord in music and the contrast of colours. Emotions are states in which pleasure and pain emerge on the presentation or representation of objects that call up by association experiences in idea which the individual or the individual's ancestors have undergone. In some cases the associated ideas can be clearly distinguished, but more frequently there is an inextricable mass of representations defying analysis, giving a vague and obscure character to the resultant state. But the representative element can gain ever more at the expense of the presentative, until finally we only with effort detect the presentative element at all. When the feeling attaches to these abstract cognitions the emotional state is termed sentiment. Thus we have the sentiment of truth, the sentiment of justice, of patriotism, of duty.

It is clear from this brief *résumé* that feeling is no independent element of mind as presentation is. Without presentation or representation, perception or idea, there were no feeling—it is, in the logician's language, an "inseparable accident" of other mental facts. Hence the tendency to confuse it with presentation itself is intelligible. Again, not being presentation or representation, it possesses no quality—the adjectives "refined," "good," "elevated," and the like have properly reference to the presentations or re-presentations with which the feelings are blended. In proportion as a sensation is more ideal do we regard the sense-feeling as superior in refinement; thus the pleasures of vision rank in estimation above those of taste. The like applies to the typical emotions, refinement and elevation here having regard to the element of ideality in the

complex state. But the climax is reached in those re-representative states where every vestige of personal reference has been eliminated, and the pleasure attaches to an object of the pure intellect. We have in the æsthetic emotions an exemplification of the progressive refinement (so-called) of feeling, for these feelings range from pure sensuous feeling to the admiration of the beautiful in human character.

The main difficulty in elucidating emotion consists in the fact that the major part is due to historic antecedents registered in the susceptible organisms, and but little to individual acquisition. No experience of the individual can account for the strength or the direction of feeling. If any one should be found to doubt the cumulative and permanent effect of racial influences, he has only to attempt to explain without such reference any of the more pronounced passions and affections. One need not be surprised, therefore, that so little progress has as yet been made in this department of psychology, owing to the excessive reliance on the introspective method, a method which leads no further than to description.

In entering fairly the domain of emotion, we are already in the neighbourhood of will. Emotions easily assume the forms of impulse and desire. Besides, any state of mind in which pleasure forms a considerable ingredient is self-sustaining, a circumstance which has been formulated as a "law of self-conservation." Pleasure quickens the vital powers which react on the pleasure; pain depresses them, thus tending to extinguish the pain. We have not will proper, however, until the pleasure itself be the object of action, a state represented by desire; whenever the memory of experienced satisfaction induces a craving for a repetition of the satisfaction, followed by efforts to attain it. Accordingly, desire is rightly regarded as incipient volition, for actual pleasure, though self-conservative in the above sense, is also self-absorbing, and gives no opening for that outgoing energy which is a mark of will. The only perplexity is to draw a hard line between the non-voluntary and the voluntary, as is shown in the case of attention, which is a direction of the mind, but primarily a fascination induced by the strength of external stimulus. Nevertheless the transition is not abrupt from this to that deliberate form of concentration most commonly suggested by the term.

The exercise of attention shows how early in the mental life will is manifested. The mark of mind we most rely upon is seemingly spontaneous movement; and personal power in its highest form appears to defy analysis. No part of our subject lends itself, however, so easily to exaggeration, and the temptation at this point to transgress the limits of mental science and tread on the domain of metaphysics has proved too great for a large number of psychologists otherwise thoroughly imbued with the idea of scientific method.

Will.

Great as the temptation is, it must be resisted, or our psychology will be thrown into utter confusion. Any view which divides man's nature into two halves with no point of contact—a region of fixed causal connections and a sphere of spiritual independence—not only makes a hopeless riddle of the phenomena of the voluntary life, but renders unintelligible the sphere of fixed law itself. The mechanism of perception, ideation, and memory is admitted, yet they are scarcely conceivable in the absence of will; if this will be a superadded lawless factor, how can we explain motive and desire? A motive is a representation which exerts an impelling power. It does not arise fortuitously; it occurs according to laws of experience and association; for its impelling force is strictly related to the mental constitution which is conscious of it. In fact, the representation *quâ* representation has no impelling force, is no motive, until it is entertained by a special kind of mental nature. Hence what is an antecedent of intense energy to one person leaves another cold and impassive. Is this arbitrary? Are the fixed conditions all on the one side? Can we trace out the sequences in the coming and going of our thoughts and feelings, and yet admit the presence of a mysterious entity in the reactive factor? Till, indeed, something stronger be

offered than a so-called testimony of consciousness in justification of the irruption of such an unconditioned element into a sphere otherwise of causal connections, we must hold that a sufficing explanation of all the phenomena of volition and conation can be afforded from known and knowable conditions. What the testimony of consciousness really amounts to is this. Between the occurrence of a presentation or representation an interval, more or less short, frequently occurs before reaction on the part of the organism takes place. This retardation of the reactive process being inexplicable by introspection, it is assumed without more ado that there were no mechanical links between impression and endeavour, but that a metaphysical entity was deciding what kind of response it should return to the solicitation. It is not difficult to show, however, that between the simplest act of will and the most complicated and rational there is strict continuity, and that the difference between an act of moral choice and the preference for the greater of two sensuous pleasures has no reference to the choice in itself, but to the place in the mind of ends of greater or less universality and permanence. This will appear more plainly on a review of the phenomena of volition.

The primitive situation in which volition is first manifested is in the representation of an object which has on presentation been accompanied by feeling. The idea of the previously experienced pleasure or pain being called up by contiguous association, the represented object acquires a peculiar value in consciousness; either induces an active movement to render it still more vivid, or leads to an act for its suppression. In two ways a representation may be intensified, either by an act of more fixed attention, or by reinstating the original conditions of its occurrence. If the mind is restricted to the former, the mental state is termed desire; if it assumes the latter, overt volition. Volition, therefore, is only a more energetic form of desire, the engagement of the muscular system as well as the motor centres. As mere desire now, except under certain peculiar conditions, is unsuccessful in realising the pleasure, the external action which converts the representation into presentation comes by early experience to be the method adopted when possible. In the case of a powerful representation, where the object is sought to be suppressed, experience proves that nothing short of turning the mind towards other representations, or favouring antagonistic presentations, is effective. Will, then, is the act of striving to procure a pleasure or to suppress a pain. It is well never to lose sight of this definition, for much of the perplexity of the present subject arises from widening the notion, so as to include either actions which have the effect of procuring pain or movements that are not purposive.

Now, if there is a solitary representation in consciousness—supposing the nervous and muscular system to be in a healthy condition—the course is certain and inevitable. The representation is, as far as there is a practicable opening, converted into a presentation for the sake of the pleasure attendant on it. This is a natural sequence, determined by the psycho-physical mechanism itself. But the case will frequently not be one of this extreme simplicity. An animal whose recurrent hunger awakes the idea of food and of the pleasure of the repast may only be able to obtain the gratification at the cost of danger which, encountered before, has left a trace in memory, so that the two competing representations drawing in contrary directions may induce suspense of action, or, after a struggle, choice. The choice of the animal, whether well or ill made in regard to its welfare, will sum up the advantage to the animal in terms of represented pleasure and avoided pain. The resolution taken will be prudential or rational from the animal's narrow standpoint. Add another factor. Suppose not only the animal's own hunger, but the wants and existence of its progeny are further motives. According to the stage of the creature's altruistic development will be the weight given to this new motive, but the choice or final resultant will again be an act in accordance with hedonical principles. The happiness of the animal itself here may only count for one, and the happiness of its helpless dependents for many, but still the act will be voluntary if it be prompted by the feeling-value of the representation. In man the extra-regarding motives may play a part so considerable as to altogether swamp the self-regarding or prudential, so that the representation of personal indul-

gence can come to count for little in the deliberation; but the detachment from self-interest, while it may make the choice more moral (*i.e.*, more altruistic), does not introduce any novelty in principle. For every truly voluntary act a reason can be assigned. This reason must be expressible in terms of experience. The object of endeavour appears to the agent *good*, and good means in final analysis a state of agreeable consciousness. If what is deliberately chosen is a state of no-consciousness (as in suicide), this simply means that in the individual's apprehension any attainable consciousness is more painful than pleasurable.

The sequence of phenomena when there are conflicting representations in psychological language is—deliberation, choice, resolution, voluntary action. The suggestion of weighing or balancing offered in the term “deliberation” must not be taken too literally. It is entirely misleading, because it is apt to suggest that the subject of the representations is passively affected, whereas the experience and organised nature of the subject are themselves all-important factors in the case. A motive, as already pointed out, derives its character, not only from the force of the extrinsic representation, but also from the nature of the subject to which it is presented. The closing of the stage of comparing ends is denoted by the word “choice,” which signifies that the phenomenal nature of the subject temporarily disrupted has again come into harmony with itself, and that only one representation occupies the mental sphere. Action then at once follows, or, being postponed, the man is said to have resolved.

From the lowest form of will—appetitive action—to the highest form—self-control—there are involved, then, the very same processes; arrest or inhibition of action being no new phenomenon, but only the form in which competing influences necessarily manifest themselves, just as the energy in colliding balls is not lost because the balls themselves come to a visible stop. The term “self-control,” however, just employed, requires a word of explanation, as it is apt to carry a connotation in the popular mouth which the empiristic theory of volition does not countenance. We talk of weak wills and strong wills, of persons possessed of no strength of character and others possessed of great self-control. Strength of will in general refers to the relative stability of the mental constitution compared with the fluctuating nature of the external influences to which it is exposed. The “strength” may be due to either a coherent inherited constitution or prolonged discipline resulting in habits. But when there is a great susceptibility to impressions, it is an index that the mental constitution is less rigid and more easily disorganised. If self-control means more than this, that additional somewhat is better expressed by rational will. For a strong will need not be a rational will, and all control is equally well or ill expressed as self-control. But the design is when self-control is emphasised to lay stress on the point that the best regulated nature is influenced by its representations in proportion to their permanent and not their temporary value. Prudential self-control allows the greatest sway to the idea of the individual's most durable interests, and moral self-control is action in conformity with the idea of the good of all. Self-control includes control of thought and control of feelings, with a distinct perception of the individual's lasting good. The special control of thought is effected through the attention by intensifying certain ideas, with the object of exciting trains of association contiguously connected with them; the control of feeling or emotion is through the thought-control, by endeavour to call up associations bound up with antagonistic feelings.

The consciousness of effort which attends the act of will in its developed form is an indication of the incomplete adjustment of the muscular system to the demands made upon it. It is by a metaphor the term is applied to the internal or central operation itself. This “effort” may be either intellectual or moral. In the former case it usually signifies a failure of associative links, as in the attempt to remember a former idea or event, or refers to impediments in the way of concentrated attention. There is effort in mastering a difficult treatise—meaning inability to see the sequences of ideas or visualise the abstract concepts. And the effort in associating passive sensations and movements as in learning to play on a musical instrument, means the

attention and repetition required to form contiguous associations. Moral effort, as the effort to "withstand a temptation," refers to the attraction of the pleasure represented, and the oscillation in consciousness between such suggested pleasure and the idea of the individual's personal welfare or the welfare of other human beings. The language is metaphorical, being derived from the sensation of resistance when large and heavy objects are to be removed.

Nerve and muscle by degrees become accustomed to the demands made upon them. A *habit* is gradually acquired, and with its acquisition there is a marked decrease of attention. The attention is relaxed, passing from the voluntary to the non-voluntary form, and finally the act becomes, as we say, "mechanical," *i.e.*, is accompanied by a minimum of consciousness or no consciousness at all. Volition begins as simple reflexion and ends as complex reflexion. It begins, *e.g.*, when the charm of a presentation arrests the vagrant gaze, and the delight aroused expresses itself in the endeavour to keep the object in view that the full charm may be absorbed—it ends with the unconscious response of movements of extreme complexity, engendered by prolonged cultivation and discipline, to slight or ideal suggestions. Mind thus appears to be an evolved mechanism, and, as such, is an object of scientific study, requiring no eking out by speculative hypotheses, but awaiting the progress of other positive sciences for the conditions of its own advance.

Not, however, that all inquiries of a properly speculative kind are foreign to psychological science. On the contrary, there is one which must be entered on sooner or later, although no settlement of the question raised has any concern with the particular contents and laws of the science itself. We have seen throughout our review that subjective mind is an abstraction, that its existence—meaning no more than the thoughts, feelings, conations, &c.—always implicated something else, more widely the world, more specially a particular organism. The larger sphere of the world it may be possible for the psychologist to ignore, but he cannot suppress the permanent condition of mind, the organism wherethrough it is manifested. The problem, then, that necessarily awaits solution is this, how are we to conceive the relation of

Body and Mind.

The view that seems to have been taken by early man would be styled by us of the present day *materialistic*—a monism, in which there is only one substance, with mental phenomena regarded as thoroughly corporeal. Ancient literatures testify to this *naïve* view—even the most ideal conceptions being presented as only attenuated matter, and the functions of thought and feeling regarded as having their seat in the viscera. It was a great step in advance when, instead of one corporeal substance, two entities utterly diverse, but causally connected, superseded this crude materialism; and this dualistic stage represents probably the prevailing view among civilised peoples. Our current language is adapted to this hypothesis; for we talk of the mind as acting upon the body, or the body influencing the mind—as if there were two distinct things, just as two physical objects each of which, without changing or losing its own nature, could somehow affect the state of the other. A third view is held by minds of a more metaphysical cast, which, reversing the natural judgment of the early man, resolves body into mind, and in place of a materialistic advocates a spiritualistic monism. This view is based upon a psychological analysis of the concrete object, matter or body, and it is asked, What is there left of any sense-object when all subjective sensations and associations have been abstracted?

That none of the three positions is sufficiently satisfactory is the opinion of the writer. It need hardly be argued at the present day that a view which confuses subjective facts with biliary secretion or molecular vibrations is incapable of interpreting human experience. A system of knowledge in which all that exists is object, and only and always object, is self-contradictory, and therefore destructive of monistic materialism. Nor does it fare better when steadily regarded with the antithetic stand-

point. That the fact, body, in final analysis is nothing but a plexus of sensations is a doctrine exceedingly difficult to bring into harmony with actual experience. A sensation is initiated in consciousness when a certain sequence of events has occurred commencing with what we call changes in the external world, affections of a physical organism, and modifications of the structure of the cerebrum. The whole of this series, according to the view in question, are subjective phenomena. But it is only when the series of events is *completed* that we have conscious sensation. Leave out any part of the series, and there is no actual sensation. What, then, of the individual terms of the series? That we cannot picture them except in sensational terms proves no more than the restricted nature of our imaginative faculty. But because spiritual monism is unthinkable there is no need to fall into the arms of the vulgar dualism. Indeed, this is even more inadequate. For two entities, one purely subject and the other purely object—such as mind and body are conceived to be on this theory—have no *modus vivendi*. Having nothing in common—the one extended and inert, the other inextended and active—how should they strike up an acquaintance and invade each other's sphere?

We seem driven, then, by the logic of experience to a doctrine which regards mind and body, as known, as modes of a single substance which itself is incognizable. According to this view, mentality is the aspect of which the correlate is certain complex nervous facts. We have good reason to trust the induction that mentality and nerve-functioning of a certain kind are inseparable phenomena. We know that when the physical conditions are completed there is always a mental phenomenon, and in the absence of the same none; and we have no less reason to hold that wherever there is a spiritual event, there is also a certain set of nervous changes. There may be a convenience in summarising the nervous phenomena as body, the spiritual phenomena as mind, but it must not be forgotten that, in that case, mind stands for the ideal events, and body for the connected nervous sequences. The body correlated with mind is the functions of the nervous system, all other functions of the organism belonging to the external world or the extra-mental sphere. It is a large question—and one we do not intend to consider here—how that external world is to be philosophically conceived.

As conclusion to the foregoing brief review of the scope of Philosophy of Mind, a short historical sketch may serve to indicate the stages by which its leading truths have been arrived at, as well as furnish an opportunity for a few additional remarks.

Historical Outline.

Aristotle, so far as is known, was the first to treat systematically of the mental processes and laws, and his influence here, as in other departments of philosophic study, has dominated most subsequent inquiry. It is indeed sufficiently wonderful how accurate was his psychological insight. He anticipated the general view of the modern empirical school, clearly pointing out the relation of phantasy to sense, and insisting on the function of imagination in the process of thinking. The laws of association as most generally accepted were enounced by him. He did not, however, do justice to feeling, failing to separate it from will; and he curiously divided the rational function, assigning one portion to the sensitive nature, in close alliance with perception and memory, and ascribing to the other an existence apart in the soul, without organic connection with the body or the other psychical powers, as inherently active and the seat of universal truth. This mixed doctrine rendered Aristotle the founder of very opposed psychological schools, causing him to be claimed, now by those who traced all knowledge to sense and association, now by those who asserted for the highest region of mind a unique and superhuman character.

During the Middle Ages there was little attempt at novel system-making. Such stir of psychological inquiry as there was took a strongly metaphysical cast, and the points of dispute turned on the precise import of conception, and the origin of

knowledge in sense or intellect. One cannot say the theory of these important subjects was much advanced thereby, for the appeal was not made to experiment, or the observation of the development of ideas in the infant or the uncultured mind.

After many wordy controversies, Locke, in this country, undertook to examine from its foundation "the original, certainty, and extent of human knowledge;" but he expressly disclaimed the design of entering upon an investigation such as nowadays we should characterise as essentially psychological. "I shall not at present meddle with the physical consideration of the mind, or trouble myself to examine wherein its essence consists, or by what motions of our spirits, or attractions of our bodies, we come to have any sensation of our organs, or any ideas in our understandings." He treats outward objects as given, and limits his inquiry to a consideration of what the mind by introspection can justly affirm about them. Outward objects somehow reflect themselves in our consciousness, and the ideas thence arising have simply to be compared, and their agreements and differences, which constitute knowledge, ascertained. By introspection, too, we learn the nature of our emotional and volitional life. Locke's metaphysical follower, Bishop Berkeley, indeed, undertook a bit of original psychological research, investigating the significance of our supposed knowledge by way of sight, proving irrefragably that the eye alone was incompetent to afford us the idea either of solidity or of distance.

David Hartley, in 1748, published an original and ingenious treatise, the first part of which is occupied with "Observations on the Frame of the Human Body and Mind, and on their Mutual Connections and Influences," the first chapter striking the key-note of the whole. "My chief design in the following chapter is briefly to explain, establish, and apply the doctrines of vibration and association." It would serve no useful purpose in this place to expound Hartley's "doctrine of vibrations." Its value consists rather in the good intention that prompted it than in the performance. The underlying thought was that "ideas," occasioned as they are by changes in the physical world, must really be prolongations in the brain of oscillations of particles in direct continuity with the "vibrations" outside. In other words, Hartley assumed the homogeneity of thoughts and sensations, and sensations and physical vibration. The doctrine of vibrations does not avail beyond the limits of sensation; thenceforward association carries on the work of mental elaboration, and by compounding and re-compounding simple ideas the most refined and exalted conceptions and emotions are sought to be shown to be engendered. This work of Hartley is not so much of importance on its own account as in paving the way for an adequate recognition of association and mechanism in the scientific treatment of mind.

The theorist who took the fullest measure of the doctrine of association is James Mill, whose "Analysis of the Phenomena of the Human Mind," published in 1829, will long remain a classic, as affording, in clear language and with inflexible consistency, a thoroughly homogeneous theory of the mental phenomena seen in the light of one great all-pervading principle. Meanwhile, the metaphysicians in the professorial chairs of Scotland had been at work lecturing systematically on the mental powers—Reid, Dugald Stewart, Thomas Brown, and, later, Sir William Hamilton. Reid, Stewart, and Hamilton form a natural line of succession, somewhat eclectic in spirit, with leanings to the intellectualism of the Continent, whereas Thomas Brown affiliates directly on Hume and Hartley. The merit of the Scottish school lies not so much in any originality of view as in the desire to be at once comprehensive and faithful to the fullest interpretation of consciousness. They show, in fact, the utmost that can be made of an abstract and introspective psychology.

We have come now to living thinkers, and of these the two who stand out prominently are Professor Alexander Bain and Mr. Herbert Spencer. Professor Bain's two volumes, "The Senses and the Intellect" and "The Emotions and the Will," have become psychological text-books. Their merits in that respect are that they give an account in clear unambiguous language of the mental phenomena, treated under the three great divisions of Intellect, Emotion, and Will, with an ample statement of the foun-

dations of mind under the heading "Movement, Sense, and Instinct," preceded by a succinct account of the nervous system. If we compare Prof. Bain's work in substance with those of its predecessors, the following points may be noted. He discards the division of the mind, favoured by the Scottish school, into faculties and powers. He does not indulge in any polemic against that fundamental division, but quietly ignores it, beginning straightway with an account of the triple division of "the phenomena of the unextended mind" as feeling, volition, and intellect or thought; and, after a review of the various species of sensibility, expounding intellectual phenomena as products of association, describing the varieties of emotion, and tracing the growth and complicated forms of volition.

In regard to the treatment of the initiatory stage of sense, two points in particular strike one—(1) the prominence given to "spontaneous activity and the feelings of movement," the place claimed for the latter as diametrically opposed to all other modes of sensibility, as affording "the most vital distinction that is possible for us to draw within the sphere of mind"—activity as contrasted with passive experience; and (2) the fusion of sensation with perception. As regards (1), the claim set up for psychical spontaneity is generally disallowed—physiological research as psychical observation tending to the result that *reflexion* is the form of all vital action. The necessity of admitting spontaneity for explaining the nature of volition is greatly exaggerated by the Professor. As to the feelings of movement, doctors considerably disagree, although, as Prof. Bain says, from a psychological standpoint proper, it is impossible to get the consciousness of activity out of any form of passive consciousness. (2) Sensation is regarded under two aspects, one emotional, and the other intellectual. In the sensations of organic life, taste and smell, the emotional aspect predominates; in touch and sight, the intellectual; and hearing is eminent in both respects. By the intellectual aspect is meant the discriminability and revivability of the sense-elements. The objectivity of certain sensations—the tactile and visual—is shown to depend upon their compound character, "muscularity," in the form either of exertion or feelings of movement, blending with the passive element, and affording the fundamental properties of the object-world. Whatever the physiologist on the one side or the metaphysician on the other may have to allege against the place assigned to active muscularity, it cannot be denied that Prof. Bain's psychical analysis of the object-world is a real contribution to psychological science, and marks an advance in the theory of perception. It is only to be regretted that he did not aim at a little more accuracy in his definitions and general treatment. There is an indistinctness in the place assigned to sensation in the threefold classification of the mental life. In one place he says, "Sensations come partly under feeling, and partly under thought;" in another he asserts, "Sensation is a primary department of feeling, and always precedes the intellect." (Thought and intellect are always employed by him interchangeably.) It is true this latter statement is afterwards modified, and we read "Sensation contains a department of feeling, and exemplifies one of the intellectual functions—discrimination"; but as he asserts that "the three attributes (of the intellect, viz., discrimination, agreement, and retentiveness) are implicated to such a degree that the suspense of one would destroy the others, discrimination could not exist without retentiveness; there would be nothing to retain without discrimination; and no progress in retention without agreement"—if the intellectual function is involved in sensation much more than discrimination is exemplified. These apparent or real inconsistencies are to be traced to the author's regarding "sensation" as a primary department of feeling, with the emotions as secondary. Sensation or the raw material of consciousness is *attended by* feeling, just as it is discriminated, assimilated, and retained, but it is not a *species* of feeling, any more than of thought or intellect. Again, it would have been well if the intellectual aspect of sensation had been kept clear from the knowledge-giving attribute. For the external reference, as in touch and sight, is something quite distinct from the intellectual aspect of sensation, say of hearing.

Prof. Bain's express treatment of intellect is an excellent review of the processes of

association. The abundance of illustration is worthy of all recognition, but unfortunately the treatment from the point of view of principle cannot be honoured with unqualified commendation. The mental construction of concrete objects, memory, and the rational operations, are indiscriminately dealt with, the laws of contiguity and similarity being made to do duty for all orders of imagination, thought, and reason. The description of the emotions cannot be easily matched elsewhere, although one desiderates, nowadays, a thorough application of the fact of evolution and the results of comparative research. Under the head of Will, the writer works out an original theory of the growth of volition from primitive random movements; utilizing his law of self-conservation (or the self-sustaining power of pleasure, and depressing effect of pain), supplemented by connections of definite movements with emotional ends, under the action of contiguous association.

Prof. Bain's work was published before the "Origin of Species" and the perception of the enormous importance of the idea of evolution. Bearing this in our mind, it is wonderful how great an advance his treatises marked when compared with their predecessors. But the mention of the fact shows where Prof. Bain's work is likely to be most defective. It was impossible for a writer who had nothing but the associationism of Hartley and James Mill, and the descriptive analysis of the Scottish school before him, to handle with effect the whole region of the emotions and the voluntary life, where inherited aptitudes play so large a part in constituting the phenomena.

The writer who early divined the extraordinary reach of evolution and proceeded to apply it to the phenomena of mind, in a book published as early as 1855, at a time when, as he remarks, "the doctrine was ridiculed in the world at large, and frowned upon even in the scientific world," is Mr. Herbert Spencer. In 1870 he considerably amplified and reconstructed his original sketch, the new work appearing in two volumes, under the title of "The Principles of Psychology," as the fourth and fifth volumes of "A System of Synthetic Philosophy." The work as issued in the years 1870 and 1872 consists of eight parts—I. "The Data of Psychology;" II. "The Inductions of Psychology;" III. "General Synthesis;" IV. "Special Synthesis;" V. "Physical Synthesis;" VI. "Special Analysis;" VII. "General Analysis;" VIII. "Corollaries." It cannot be said that the arrangement is favourable to facile study. Each part, indeed, forms a little treatise by itself, with no necessary dependence on its predecessors. This is not in accordance with the intention of the author, but most undoubtedly is the practical effect. This need not trouble the serious reader, however, and the thorough student will find ample instruction in the perusal of the whole. The scope of psychology is considerably enlarged in the view of this writer, Prof. Bain's work being relegated to an introductory department, termed "Æsthophysiology." And the like subordinate place is assigned to all treatments which limit the investigation to the mental process alone, or the mental in connection with the nervous process. "For that which distinguishes psychology from the sciences on which it rests is, that each of its propositions takes account both of the connected internal phenomena and of the connected external phenomena." This imposes upon him the necessity of vindicating the real existence of an outer world, independent of, but reflected in, our consciousness. This is supplied in part vii., where the idealistic philosophers are encountered, and a purified or transfigured realism advocated, viz., "that there exist beyond consciousness conditions of objective manifestation which are symbolised by relations as we conceive them." There is much strictly subjective analysis, however, throughout the book, and part vi. commences with an analysis of the most complex rational acts, followed by an examination of the percepts, space, time, motion, and resistance, and terminating with an analysis of the various classes of relations which condition consciousness in general. The most characteristic part of the book is probably part iv., where the growth of intelligence is expounded—the first form being taken to be reflex action, then instinct, memory, reason, the feelings, and the will, each implicating the phase before, and the whole representing stages of increasing subjectivity, with less and less complete organisation—in reflex action, the interval between stimulation and reaction being almost too

brief for mentality, whereas in will the consciousness is at its maximum, the interval being so considerable between stimulus and reaction that a whole series of mental phenomena may occupy consciousness. Part viii., "Corollaries," is replete with valuable original suggestions, being largely occupied with the feelings and emotions, of which little had been said in the earlier parts.

Mr. Spencer represents the latest development of psychological science in this country; for other modern phases we must cross to Germany.

Johann Friedrich Herbart (born 1776, died 1841) gave a highly original turn to psychological inquiry by, on the one hand, endeavouring to rear an empirical science on a metaphysical monadology reminiscent of Leibniz, and, on the other, by endeavouring to apply the methods of mechanical physics to the movements and connections of ideas. The soul, in Herbart's view, is a real being, but absolutely simple. This is inferred from the fact of self-consciousness, which is strict unity, albeit a number of ideas can simultaneously exist in consciousness. This ideational life is the soul's fundamental act of self-conservation. The soul has no "faculties;" it has only content, and this content is subject to mechanical laws. Thus all ideas possess an inherent activity, in virtue of which they further and check one another. Ideas are real forces, no particle of whose energy is ever lost. If ideas happen to be opposed, they are said to suffer arrest, *i.e.*, they severally lose a portion of their original intensity, one or all of the ideas being driven below the threshold of consciousness. Herbart computes symbolically or mathematically the redistribution of intensity as ideas of different strength influence one another. We have, then, to conceive the mind as a realm of real forces which are indestructible, but which are continually experiencing emergence into consciousness or submergence, according to the changing conditions. The threefold division of mind is discarded as an attenuated form of the faculty hypothesis. These are nothing but *Vorstellungen* or representations, which, according to their manifestation in consciousness, announce themselves as clear knowledge, obscure feeling, or by partial struggle as desire and will. Although so *bizarre* in the form of its originator, the system of Herbart has, with various modifications, probably influenced psychological inquiry in Germany more than any other during the present century (and is even obtaining a footing in England; see Dr. James Ward's article, "Psychology," in the ninth edition of the "Encyclopædia Britannica"). Even those who can in no sense be called disciples have been considerably influenced by Herbart. This is true of two of the greatest names in recent mental philosophy—Lotze and Professor Wundt.

Lotze presents the unusual spectacle of a thinker who is at once thoroughly imbued with the spirit of empirical science, and yet in earnest with metaphysics or ontology. He has no doubt about the existence of a soul-entity, and, while prepared to welcome all the results of physiological research and pathological evidence, is firmly convinced that no extension of natural knowledge can dispense with the admission of spiritual activity over and above all mechanical and biological forces. The difficulty which seems to have impelled him to, and maintained him in, this position would appear to be the unity of self-consciousness. Among other things this ultimate unity renders, in his view, all attempts to derive extension, or the most general property of the object-world, from experiential data, futile. In experience representations possess only intensiveness—space is a mental construction, occasioned by, but not generated from phenomena of sense, whether motor or sensory (the sensory datum is certain "local signs" by which parts of the skin or retina are distinguished). It is needless to add that all physical facts are construed by Lotze idealistically.

Wundt's position is more related to that to which we in England are accustomed. He is the most distinguished expositor of psychology qualified as physiological. After a lengthy account of the nervous system and its functions he enters upon a detailed examination of *Empfindungen*, or sensations conceived apart from mutual relation in consciousness. Then he passes to an equally thorough examination of complex *Empfindungen*, which he terms *Vorstellungen*. After that there is a section on con-

consciousness and the course of *Vorstellungen*, which includes *Gemüthsbewegungen* or the life of feeling and emotion. Then the will, and a final section "On the Origin of Mental Development." The Herbartian influence is plainly visible in his account of feeling, which is no ultimate fact of mind, but the reaction of consciousness under the presentation of ideas. On the other hand, Wundt will have nothing to do with the unconscious and unconscious states; and, in opposition to both Herbart and Lotze, he regards the unity of the soul as unity built up out of complexity. He also declines to commit himself to the assertion of substantiality in respect of mind. The ultimate fact of consciousness he says is apperception, or the act of concentrated attention. This act, being always simple, constitutes the simplicity of the Ego in the only sense in which it can be attributed. Further, as the mental life is self-evidencing, it is meaningless to speak of a spiritual substrate; it is only "material" phenomena which can properly be said to have *thingness*, *i.e.*, be treated as attributes inherent in a substance. Substantiality, we might say, is the shadow of the apperceptive act.

The interaction of body and mind has received a new and special treatment as an independent empirical problem by G. T. Fechner and a few eager followers. Fechner called into existence a fresh department of mental science, which he styles "Psychophysics," the object of which is to quantitatively determine the relation of mental phenomena to physical stimulation. Quantitative experimentation, originally confined to sensation in respect of its variable intensity and discriminability, has recently been extended to more representative states of mind, and psychophysics is being supplemented by psychometry and elaborate investigation in laboratories fitted with appropriate instruments.

Lastly, allusion should be made to the comparative study of the human mind. Ethno-psychology, or the science of the social mind, as revealed in institutions and national customs, has already been prosecuted with considerable success, but doubtless has a greater future before it.

This brief historical sketch will, perhaps, be thought to strengthen the assertion, hazarded at an early part of this article, in regard to the immaturity of mental philosophy. Psychology is in that transition stage which is incident to science, when a number of workers are offering contributions arrived at by many different and hitherto untrodden paths. It will be the task of an after-time to gather up the ascertained truths, and reduce them to the unity of system.

[BIBLIOGRAPHY.—In addition to the works of Bain and Spencer mentioned in this article, the English student, who desires to become acquainted with the Philosophy of Mind in its most modern form should read Dr. James Sully's "Outlines of Psychology with special reference to the Theory of Education." He may then peruse with profit Dr. Ward's very careful and suggestive article, "Psychology," in the new edition of the "Encyclopædia Britannica." At the present time there is much activity in this field in the North American Colleges, and Dr. Dewey's (Michigan) "Psychology" may be commended for its catholic tone and copious references, while Prof. Ladd's (Yale) "Physiological Psychology" offers a scientific treatment of an aspect of the subject not previously to be found out of Germany.]

W. C. COUPLAND.

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ABALIENATION (*ab*, from ; *alieno*, I cut off or estrange). A term originally employed by Scribonius Largus (*Abalienatio*), denoting loss or failing of the senses or mental faculties.

ABDERA. — A town in Thrace, the birthplace of Democritus and several remarkable men ; its inhabitants, however, had the character of being more stupid than other people. Hence an "Abderite" became a proverb.

ABERRATION, MENTAL (*aberro*, I depart from ; *mens*, the mind). The wandering away from soundness of judgment. Any form of mental disorder. A deviation from the recognised normal mental type.

ABOIEMENT (Fr.). The involuntary production of abnormal sounds — *e.g.* barking. See BARKERS, HYSTERIA, EPIDEMIC INSANITY, &c.

ABOMINATION (*ab*, from, or *absit*, let it be absent ; *omen*, a sign). Loathing for food.

ABOULOMANIA (*á*, priv. ; *βουλή*, will ; *μανία*, madness), or **ABULIA** (*á*, priv. ; *βουλή*, will). Terms used for a form of insanity characterised by inability to exert the will, other faculties, it is alleged, not being of necessity affected. (Fr. *Aboulie* ; Ger. *Willenlosigkeit*.)

ABRAM MAN. — Another name for Tom o' Bedlam, so called from the Abraham ward in Bedlam, which had for its inmates begging lunatics, who used to array themselves "with party-coloured ribbons, tape in their hats, a fox-tail hanging down, a long stick with streamers," and beg alms ; but "for all their seeming madness, they had wit enough to steal as they went along." (Brewer, from the "Canting Academy.")

ABSINTHE (*Artemisia absinthium*). — A plant, the essence of which enters into the composition of the drink which bears its name, and of other liquors of the same kind. The effects of the absinthe drink are well-known, thanks to the works of Magnan, Laborde, Motet, Melangée. Mixed with alcoholic drinks, it adds its special action to that of alcohol, and gives a characteristic physiognomy to alcoholism. Its action, tested by physiological experiments and by clinical observations, may be expressed in two words. It pro-

vokes epileptic attacks with vertigo, and an epilepsy which is identical with the genuine form ; it induces with the greatest rapidity, sometimes even at the onset, the production of well-marked symptoms of excitement, with hallucinations of great intensity, and of a frightful character, especially of sight, even before the alcohol has had time to produce its peculiar effects. The drunkenness of absinthe is, moreover, of unprecedented violence, and presents the greatest danger.

M. LEGRAIN.

ABSTRACTION (*abstraho* ; from *abs*, from ; and *traho*, I draw). In psychology, a term applied in a general sense to that mental process by which the consciousness is withdrawn from the contemplation of a number of objects, to concentrate it on one in particular. From another point of view it is the correlative term to attention, for as attention is the concentration of the mental faculties upon a definite object, it involves withdrawal of consciousness from all other objects, and thus, withdrawal being abstraction, it follows that abstraction is the negative side of attention ; or, as Hamilton expresses it, the two processes form the positive and negative poles of the same mental act. Abstraction again is closely connected with the process of classification, for to abstract is to separate the qualities common to all individuals of a group from the peculiarities of each individual.

ACATALEPSY (*á*, priv. ; *καταλαμβάνω*, I attack). A word used to denote uncertainty of mind ; also a synonym of *Dementia*.

ACEDIA (*ἀκήδεια* : *á*, priv. ; *κῆδος*, care). Carelessness, listlessness, or want of interest ; want of care literally ; neglect, mental fatigue. A mental condition characterised by sadness, mental confusion and apathy, bitterness of spirit, loss of all liveliness, and utter despair. It is a condition frequently met with in monasteries, and chiefly affects the younger monks ; it has also been observed, but in a lesser degree, in students, especially such as lead solitary lives and who study assiduously. The fasting so common in monasteries has also been looked upon as a causative influence. (Fr. *Acédie* ; Ger. *Sorglosigkeit*.)

ACETAL. (See SEDATIVES.)

ACINESES (*â*, priv.; κινέω, I move). Neuroses which are characterised by loss of power of movement.

ACOLASIA (*â*, priv.; κόλασις, a pruning). An old term for morbid intemperance or lust. (Fr. *acolaise*; Ger. *Ausschweifung*; *Wollust*.)

ACORIA (*â*, priv.; κορέω, I satiate). A synonym of Bulimia or voracious appetite. (Fr. *acorie*; Ger. *Unersättlichkeit*.)

ACOUSMA (ἄκουσμα, the thing heard; from ἀκούω, I hear). A species of depraved hearing in which sounds are imagined as if they were really heard. The term is sometimes used as a synonym of auditory hallucination.

ACRAI (Arab.). A word denoting a certain degree of genital irritation in either sex, used by Avicenna and Castellus; apparently synonymous with Nymphomania and Satyriasis.

ACRASIA (*â*, priv.; κράσις, a mixture). A term used by Hippocrates (ἀκρασία) to denote morbid intemperance in food, drink, or any other thing; morbid excess; sometimes used synonymously with Acratia (*â*, priv.; κράτος, strength) for debility, impotence, or inefficiency.

ACROMANIA (ἄκρος, the summit; μανία, madness). Confirmed or incurable madness. (Fr. *acromanie*.)

ACTIONS AGAINST MEDICAL MEN. (See LUNACY LAW.)

ACTUATION (*ago*, I do or perform). A psychological term intended to designate the department of mental function that intervenes between the impulse of will to do a particular act, and the actual performance of it.

ACUTE DELIRIOUS MANIA.—**Synonyms.**—Phrenitis, Bell's Disease, Typhomania, Délire aigu, Delirious Mania, Acute Delirium, Delirium Grave, Mania Gravis, Delirium Acutum.

Definition.—An acute form of mental disorder, generally of rapid onset and course, in which the mental state resembles to a great extent the delirium associated with febrile diseases, and is associated with rise of temperature, great prostration, and rapid exhaustion, and which tends in a large proportion of cases to coma and death.

Causes.—(a) *Predisposing.*—This form of insanity occurs most frequently in the prime of life, and generally between the ages of twenty-five and forty. Women are more liable to suffer than men, and neurotic, or insane inheritance, is present in a large proportion of cases. The hysterical or nervous temperament, nervous exhaustion arising from prolonged intellectual work or overstrain, prolonged excru-

ciating physical suffering, prolonged feeble health or exhausting disease, such as phthisis, the struggle for existence, or long continued anxiety, with insufficient food, may give rise to acute delirious mania, especially if emotional shock be super-added.

Prolonged habits of intemperance are potent in predisposing to it, and Krafft-Ebing adds to the above-mentioned causes the onset of the climacteric.

(b) *Exciting.*—1. Physical.—It may result directly from fevers, such as measles or typhoid, especially if complicated with delirium, or may follow inflammatory diseases such as pneumonia and acute rheumatism. Further, I have seen it arise after cystitis, and after diarrhœa, and in association with diabetes. A sudden excess of drink, especially if the system is previously debilitated from any cause, may be the origin. The puerperal state sometimes gives rise to it, especially if there has been difficult or complicated labour, or if there are septic troubles. It may be the commencement of general paralysis of the insane, and, according to Blandford, may succeed epilepsy. It occurs occasionally after surgical operation, being perhaps due partly to the anæsthetic. Krafft-Ebing gives, as further causes, heat injuries (*calorische schädlichkeiten*), sunstroke, hyperostosis of the skull, and chronic thickening of the pia mater.

2. Mental.—Emotional shocks of a painful nature, such as the sudden death of relatives, sudden misfortunes, quarrels, love disappointments, business crises, domestic anxieties, and money troubles, very commonly have been present, one or more of them acting in conjunction with a predisposing cause, and leading to a breaking down of the highest nervous mechanism.

Symptoms.—The onset may be sudden, the first symptoms being, perhaps, apparent on waking from sleep (Blandford), but more commonly there is a short premonitory stage of a few days' duration. During this period there will probably be headache, with a sensation of bursting, or a feeling of heat or confusion in the head, or a general feeling of numbness. This will be associated with some depression, with sleeplessness, irritability of temper, or morose solitariness, and an aspect implying worry or annoyance. The disposition is altered, and, according to Krafft-Ebing, there is occasionally vomiting, intolerance of light and sound, uncertain gait, and contraction of the pupils. Some trifling addition to the load of trouble may then give rise to delirium. The established disease is marked by

almost absolute sleeplessness, unless medicine be given, or else there are snatches of imperfect sleep, from which the patient easily wakes into delirium. The face is in this period said to be flushed, the lips are tremulous, and the tongue foul and thickly coated. The delirium is generally at first of an acute maniacal type, there being constant shouting or singing, and it may be either of the angry or gay variety; there may be however dreads and fears either of fire or hell, but there are no fixed delusions, the delirium tending more and more to assume the low typhoid type. The attention cannot be arrested, there is no continuous thought, and consciousness is considerably impaired, the patient failing to recognise his friends, or understand his surroundings. There are generally hallucinations of sight and hearing, such as flames, lights, bells, or voices, but no connected account of them can be got from the patient. The memory appears to be lost. There may be in the delirium occasional obscure references, or perhaps set phrases, relating to the emotional cause (Spitzka), but the speech rapidly becomes a confused rambling, in which no connection can be traced. Exalted ideas are rare, unless the attack be associated with the onset of general paralysis. Most observers agree that food is very commonly refused, perhaps from some delusion about it, or from dysphagia, or from spasm of the lips or jaw, but more probably from want of appreciation of its nature, and general resistance to the environment. According to Blandford, however, these cases do not as a rule refuse food. The same opposition is shown to all attempts at treatment or nursing. The bowels are usually confined, and the motions often offensive, and there is involuntary passage of the evacuations. The urine is generally scanty, and, according to Krafft-Ebing, frequently contains albumen. On account of the patient's habits, it is almost impossible to save it for the whole twenty-four hours in order to test the amount of urea eliminated. Menstruation ceases. There may be vaginal discharge (puerperal septic cases). The pulse is rapid (120-140), but varying with the excitement, small, feeble, and compressible, and may be dicrotic; the heart sounds are muffled and distant. The respiration is rapid, shallow, and sighing, and there is a tendency to hypostatic congestion of the lungs. Further, there is great restlessness, either purposeless or rhythmical movements of the limbs or head, grimaces and teeth-grinding, or else violent general excitement. The gait

is unsteady and tottering, or there may be alcoholic paralysis. The pupils are said to be generally contracted in this stage; there may be strabismus. The superficial and deep reflexes are in the earlier stages increased. "There is commonly eroticism in both sexes, perhaps shown by self-abuse, and, according to Blandford, there may be an "odour of sexual excitement." The temperature is raised, but has no definite course, it may reach as high as 105° or 106° Fahrenheit, but more commonly varies between normal and 103°, rising to this perhaps once or twice a day, but at no regular time, or else being more or less continuously elevated 2° or 3° above the normal. A febrile temperature is supposed to be necessary to a diagnosis of this form of insanity, but Krafft-Ebing mentions an adynamic type in which the fever is absent or slight, and I have met with the same condition. As the disease progresses the patient becomes more prostrate, the face becomes pale, and then perhaps cyanotic. There is great prostration, with inability to stand, and the dorsal decubitus is assumed. Acute bed sores may form from lesion of trophic nerves, or from pressure, or bullæ may appear on other parts. The tongue becomes dry, the teeth and lips covered with sordes, and the mouth full of ropy saliva, which may dry on the palate, and render feeding difficult, and swallowing almost impossible. The pulse fails and becomes irregular. There is general wasting, and loss of subcutaneous fat, even when fever is absent (Krafft-Ebing), and in alcoholic cases there may be peripheral neuritis, with muscular atrophy and disappearance of reflexes. In the course of a few days from the onset of the symptoms the patient may pass into a further stage of "post-maniacal reaction" (Spitzka), or "sopor" (Krafft-Ebing). The extreme of mental and physical exhaustion is reached, there is low muttering delirium, apathy, and collapse. The pupils dilate, there is general anæsthesia, dry tongue, picking at the bed-clothes, sweating, pulmonary congestion, cyanosis, intermittent pulse, coma, and death. The temperature is said to fall before death, and rise at death, but it may remain high, or steadily rise till the fatal result takes place. Remissions, or temporary fallacious improvement, are not uncommon. In cases which do not end fatally, however, the general nutrition will have begun to improve before the last stage is reached, the temperature falls, the tongue cleans, sleep is established, the delirium passes off, and there may be rapid convalescence.

In other cases there may be rapid physical improvement, but a very prolonged mental convalescence, the condition being one of semi-stupor, with failure to realise surroundings. The memory of the attack is usually entirely obliterated. According to Spitzka, the following may occur as sequelæ: loss of hair, desquamation, atrophy of the nails, enlargement of the spleen, atrophy of muscles, anæsthesia, pemphigus-like vesicles, and spontaneous gangrene.

Cases which do not recover, or die, may become permanently demented, or may pass into general paralysis.

Krafft-Ebing divides cases into those with stormy course and much fever, and those of an adynamic type with fever absent or slight. Schüle describes a meningitic, or maniacal form, and an adynamic or melancholy one. Second attacks are said not to occur.

Prognosis.—Generally unfavourable to life. According to Blandford, one patient in three dies; Spitzka says the majority die, and that there is never complete recovery. Folsom says recoveries are rare. The prognosis is better in women than men, and is bad in proportion to the acuteness of the attack, the height of the temperature, the refusal of food, the absence of sleep, the tendency to prostration, the presence of complications, and the failure of treatment. Recovery may take place as early as one month from the onset. Patients may pass into general paralysis, or become demented.

Diagnosis.—From ordinary acute mania the disease is diagnosed by its usually more sudden onset, its greater severity, the rise of temperature, the rapid exhaustion and prostration, and the fatal result. Clouston does not recognise it as distinct from ordinary acute mania, but describes it as the third stage of that disease, and as not occurring in many of the patients, if properly treated; but all other writers describe it as a distinct variety. From the delirium of fevers the diagnosis is made by the absence of any characteristic rash, and the want of any definite course in the temperature. Cases of acute febrile disease, commencing with severe delirium, are, however, occasionally sent into asylums as cases of insanity, the diagnosis only being possible by the course of the disease. As before mentioned, the attack may, however, be post-febrile.

From delirium tremens the diagnosis is made by the usually greater amount of fever, and there is less tremor, and the hallucinations are not so definitely of the terrifying type, and are more variable,

and there is more incoherence, and more profound affection of consciousness, and the termination is more frequently fatal. There is, however, a febrile variety of delirium tremens, which is frequently fatal, and in which the symptoms closely approximate to acute delirious mania. From acute meningitis the diagnosis is made by the greater frequency of ocular and other paralyses, the presence of optic neuritis, the greater prominence of headache, and the frequency of vomiting and convulsions in that condition. According to Spitzka, many of the recorded cases of meningitis from over-study are really cases of acute delirious mania.

Pathology.—The post-mortem appearances are described by some authorities as consisting of intense cerebral hyperæmia in the excited period and œdema in the later stage. The cellular elements are said to be swollen, opaque, granular and to stain badly, and the pericellular and perivascular spaces to contain red or white corpuscles, and there are sometimes white lines along the vessels from extravasated leucocytes, and occasionally small extravasations of blood in the brain substance. The process is regarded by Krafft-Ebing as one of active hyperæmia followed by venous engorgement, exudation of blood elements, and then pressure symptoms. Bevan Lewis regards it as the most profound maniacal reduction met with. It is doubtful to what extent the post-mortem appearances in the brain account for the symptoms observed during life. The rise of temperature is probably owing to disturbance of the thermotaxic mechanism due to affection of the cerebral cortex. This is rendered more probable by the irregular course of the temperature generally observed. The lungs show hypostatic congestion or actual consolidation, the heart is flabby and its substance pale and degenerated, and the blood thin and fluid. The voluntary muscles may show changes analogous to those of typhoid fever (Krafft-Ebing) or may be wasted and degenerated from peripheral neuritis. If the case be of septic origin there will be signs of that condition.

Treatment.—If the case be seen quite early it is possible the attack may be cut short by the securing of good sound sleep, and the administration of abundant nutritious food, the patient at the same time being isolated from all sources of irritation and annoyance, and kept in bed in a darkened room with skilled nurses in attendance. The difficulty is always to ensure this in an ordinary house, and during convalescence the patient may again be exposed to the original cause of his illness: in

most cases therefore it becomes necessary or most advisable that he should be sent either to a general hospital or some institution for the care of the insane. The amount of initial excitement generally assists largely in the decision of this point, but there is no doubt the milder cases of this nature frequently find their way into the wards of general hospitals. If the case be at all severe it is advisable that rest in bed and in seclusion should be at first tried, though a properly regulated amount of open-air exercise is advisable if the patient's strength permits it. If food be refused the patient must without delay be fed artificially several times a day with milk, beef tea, eggs, or some peptonised or concentrated form of meat, and this should be persisted in till convalescence is fairly established. It is better to feed artificially too early than too late. Stimulants are almost always necessary, but must be used with caution if the case be alcoholic in origin, port wine or brandy to 6 or 8 oz. daily, being the best form to administer; but some patients will sleep after bottled beer. If sleep does not follow exercise (provided the patient be strong enough for it) or food, it must be obtained by drugs, the best being those which do not interfere with the heart's action or the appetite, such as paraldehyde, hypnone, sulphonal or chloralamide—the two first named are, however, nauseous, and the third insoluble, but they may be given with the food if artificial feeding be used. Chloral hydrate and bromide of potassium are better avoided, but may act when other drugs fail. Opium and morphia in any form are said to be either useless or injurious, and hyoscyamine or hyoscyne is too depressing for a disease which so rapidly tends to exhaustion. Krafft-Ebing quotes Solivetti as having had most successful results from the hypodermic injection of ergotine. In patients who are wearing themselves out with rolling about or continuous movement, some form of restraint, such as the dry or wet pack, is sometimes necessary, but the latter especially must be used with great caution, as patients suffering from this disease sometimes die quite suddenly. The tepid bath, with the application at the same time of cold to the head, has been recommended, but there is the same danger as in the last-mentioned method of treatment. Leeches or blisters only debilitate or irritate the patient and should be avoided. There is no form of insanity in which more careful and skilful nursing is required and in which so much depends on the intelligence and tact of those in charge of the case. Local complications

must of course be treated, and bed-sores guarded against. During convalescence the patient will require nourishing food and tonics, and prolonged rest from all intellectual work is most important.

R. PERCY SMITH.

ADDEPHAGIA or **ADEPHAGIA** (*ἄδδην*, enough or abundantly; *φαγεῖν*, to eat). Term for a morbidly voracious appetite, or the disease Bulimia (*q.v.*) Also a name for the goddess of gluttony whose temple was in Sicily.

ADEMONIA or **ADÆMONIA** (*ἀδημονία*, trouble, distress; or from *ἀ*, priv.; *δαίμων*, fortune or its vicissitudes). A term for restless thought, great mental distress or anxiety. (Fr. *Adémone*; Ger. *Angst*.) Occasionally used as a synonym of Melancholy (*q.v.*)

ADEMOSYNĒ (*ἀδημοσύνη*, rare form for *ἀδημονία*, trouble, distress). Depression of spirits; also a synonym of Nostalgia (*q.v.*)

ADERMONERVIA (*ἀ*, neg.; *δέρμα*, the skin; *νεῦρον*, a nerve). Loss of sensibility of the skin; a synonym of Anæsthesia.

ADHESIVENESS (*adhæreo*, I stick to). The power or quality of adhering or sticking to. A faculty common to man and the lower animals, producing the instinctive tendency to attach one's self to surrounding objects, animate and inanimate, and also the love of society. (Fr. *adhésivité*.)

ADMIRATION (*admiror*, I wonder at). Wonder coupled with approbation; admiration apparently consists of surprise associated with some pleasure and a sense of approval. When vividly felt the eyes are opened and the eyebrows raised; the eyes become bright instead of remaining blank as under simple astonishment; and the mouth, instead of gaping open, expands into a smile (Darwin). (Fr. *admiration*; Ger. *Bewunderung*.)

ADMISSION, Forms of. (See LUNACY ACT, 1890.)

ÆDEOMANIA (*αἰδοῖα*, the genitals; *μανία*, from *μαίνομαι*, I rage). A synonym of Nymphomania.

ADOLESCENCE, Insanity of. (See DEVELOPMENTAL INSANITIES AND PSYCHOSES.)

ADVOWSON.—If a person to whom an *advowson*, or the right of presenting to a church living, belongs, becomes insane, neither he nor his committee can exercise the right of presentation. It is vested in the Lord Chancellor, by virtue of his general authority: Roger's "Eccles. Law," p. 16; Wood, *Lect.* p. 490.

An *advowson*, forming part of the real estate of a lunatic, cannot be sold for any

purpose other than those that are expressly recognised by law. In *Re Vavasour*, 1851, 3 Mac. & G. 275, an application was made to the Lord Chancellor under 11 Geo. IV. and 1 Will. IV. c. 65, ss. 9 & 28, for liberty to sell an advowson, forming part of the real estate of a lunatic, who had become a Roman Catholic previous to his lunacy, and was therefore incapable of exercising the right of presentation. The statute under which the application was made gave a power of sale for certain specific purposes only, viz., payment of debts, discharges of incumbrances on a lunatic's estate, and the costs of applying for and obtaining a commission in lunacy. Lord Chancellor Truro refused the application. The statute under which this application was made was repealed by 16 & 17 Vict. c. 70, s. 1, and Schedule. (See LUNACY ACT, 1890, ss. 117 & 120.)

A. WOOD RENTON.

ÆROPHOBIA (ἀήρ, air, the atmosphere; φόβος, fear). A morbid dread or fear of any current of air; such as occurs in hydrophobia. (Fr. *aérophobie*; Ger. *Luftscheu*.)

ÆRUMNA (αἶρω, I assail, or from αἶρομαι, I lift or carry; or, according to others, a contraction of *aegrinomia*, sorrow). A term for weariness or unhappiness conjoined with physical dejection or suffering. Used to denote the melancholy and depression attendant on bodily ills.

ÆSCHROMYTHESIS (αἴσχροός, base; μῦθος, speech). A term used by Hippocrates for the obscene language uttered by the delirious or maniacal, especially in puerperal mania.

ÆSTHESIA (αἴσθησις). Perception of sensation.

ÆSTHESODIC (αἴσθησις; ὁδός). The grey substance of the spinal cord, conducting sensory impressions to the brain, is termed æsthesodic, while the channel through which the motor impulse passes from the brain to the muscles is called kinesodic.

ÆSTHETICA (αἰσθητικός, from αἰσθάνομαι, I perceive by the senses). Belonging or relating to the understanding or mental perception.

ÆTIOLOGY OF INSANITY. (See STATISTICS OF INSANITY.)

AFFECTIO HYPOCHONDRIACA (*afficio*, I affect; hypochondriasis, *q.v.*). Hypochondriasis.

AFFECTIO HYSTERICA (*afficio*; hysteria, *q.v.*) Hysteria.

AFFECTION (*afficio*). A term applied to the passions or emotions of the mind, as anger, jealousy, love, and hatred.

AFFECTIVE FACULTIES (*afficio*; *facultas*, capability). The faculties which include animal propensities (common to man and the lower animals) and affective propensities (peculiar to man only).

AFFECTIVE INSANITY (*afficio*; *in*, not; *sanus*, sound). A form of insanity opposed to the ideational, in which the emotions or feelings only are affected. Some alienists divide affective or emotional insanity, as it is more commonly called, into two varieties—impulsive and moral insanity. In both the language may be coherent and the memory and judgment sound and accurate. In impulsive insanity one only, or a few of the moral faculties, sentiments, or feelings may be perverted. In moral insanity the moral faculties are generally perverted; there is loss of power of the will to keep the emotions in subjection. (See arts. IMPULSIVE INSANITY; MORAL INSANITY.)

AFFECTIVE MONOMANIA (*afficio*; γόνος, alone; μανία, madness). Esquirol's term for emotional insanity.

AFFECTUS ANIMI (*afficio*; *animus*, the mind). Mental disorder of any kind.

AFTER-CARE.—According to a recent official statement, the total number of lunatics in England and Wales was 86,067—of these 77,277 were pauper lunatics, the larger proportion, 42,883, being females, belonging chiefly, though not exclusively, to the lower, down to the lowest, and lower middle classes. Representatives of all trades and occupations—whatever station—are found among them—of domestic servants 1225 were admitted in one year, within the same space of time 3000 married and single women, engaged in domestic and household duties. Again, the statistics of twelve months record the admission into asylums of 144 teachers. The number of recovered female patients from county and borough asylums in course of the year to which these figures refer, was 43,21 of admissions.

Need of After-Care.—It may be supposed that many women annually discharged from lunatic asylums would be poor and friendless, and stand in need of what may be termed after-care. If convalescents leaving general hospitals have often a cheerless prospect before them, still more pitiable in many cases is the condition of those convalescing from mental disorders, not only on account of the more serious and disabling nature of their malady, but also because their ailment has frequently been not mental only, but physical also. So that their convalescence often needs to be twofold.

The process of recovery is not completed when convalescence has set in.

Besides all skilful treatment and fostering care during the course of mental disease—suggested by the words :

“What can man's wisdom do
In the restoring his bereaved sense?”*

—there is need of after-care when sanity has been restored, for

“'Tis not enough to help the feeble up,
But to support him after.”†

Some such after-care was supplied : first, by the statutory allowance which committees of management were empowered to make to convalescents, for a limited period, on their probationary discharge ; this would furnish maintenance for a period of about four weeks. Secondly, by assistance from private funds at the disposal of the authorities of some asylums.‡ Thirdly, by charitable help of friends. But a more systematic ministrations of after-care which should supplement what was already done was needed.

France.—In France there has existed, since 1841, an after-care association known as “L'Œuvre de Patronage et Asile pour les Aliénés Indigents qui sortent convalescents des Asiles de Traitement.” Its founder was Dr. Jean-Pierre Falret. The area of its operations is the “Département de la Seine.” Its benefits are bestowed through three principal channels. (1) A central “convalescent home,” the inmates of which are exclusively “poor and friendless female convalescents,” on leaving asylums for the insane. Their sojourn is temporary, not exceeding five or six weeks, during which time their bodies, minds, and souls have the advantage of kindly ministrations, and on leaving they receive introductions to employers, and are invited to revisit the home. (2) Another form in which after-care is exercised is in the “Réunions du Dimanche.” That is, on Sundays the “home” welcomes as guests a certain number of mental convalescents who may desire to spend some restful pleasant hours in the institution where they abode for a season. Their children are welcomed ; husbands often accompany their wives ; they are hospitably entertained, attend chapel service, walk in the grounds, and, on leaving, look forward to another meeting at no distant date. In the year 1888, 1441 persons, men, women, and children were received as Sunday guests into the home. (3) The third

method by which the “Œuvre de Patronage et Asile” renders assistance to mental convalescents is by visits to them in their own homes, especially in cases where occupation, illness, or other causes prevent them from coming to the “Asile.” The number of domiciliary visits paid in the year referred to was 845. The work of this excellent French institution merits careful consideration and imitation in its main features, by those who are interested in the furtherance of after-care in our country.

In *Switzerland* there exists a system of “after-care” in several Cantons. It appears that aid is given to convalescents from mental disorders, by advice and deed ; by endeavouring to provide occupation ; by pecuniary assistance, varying from 50 to 200 francs, 100 francs being the average expenditure on individual (convalescent?) cases. The person discovering cases in need of treatment reports to the secretary. A voluntary subscription of 2 francs annually, from individuals, supports the sustentation fund. We are assured that these societies are much valued by the medical superintendents of the Swiss asylums.

United States.—A courteous communication from the Rev. F. H. Wines, Springfield, Ill., U.S., states, “no system exists in this country for the after-care of poor mental convalescents after leaving asylums for the insane. In this country most poor and friendless female convalescents are either retained in the institutions from motives of humanity, or are received into the county poor-houses, where they are ordinarily quite comfortable. I do not suppose that the same demand exists for this particular kind of charity in the United States as in England.”

Scotland.—The superintendent of the Royal Asylum, Morningside, Edinburgh, kindly writes: “We have no after-care society in Scotland. The deserving or needful patients we usually know, and I commend them to the special care of the parochial authorities and charity associations. I have a special fund here too for such cases when they leave us. All the asylum doctors know personally, and are on good terms with, the inspectors of the poor, and between them they try to individualise each case.”

Ireland.—No special provision for after-care appears to be organised in Ireland. “I have often thought on the subject of after-care,” writes a physician (Dr. Conolly Norman), “and wish we could make some move in that direction in Ireland.”

England.—Nor does it appear that

* “King Lear.”

† “Timon of Athens,” act i. sc. i.

‡ E.g., Adelaide Fund at Hanwell, and Victoria Fund at Colney Hatch, now merged into one fund.

there has existed, until lately, in England any special organisation for the after-care of persons recovering from disorders of the mind. In the April number of the *Journal of Mental Science*, 1871, there appeared a paper called a "Plea for Convalescent Homes in connection with Asylums for the Insane Poor," and in 1879 another paper of which the title was after-care. These papers were by the Rev. H. Hawkins, chaplain of the Middlesex Asylum, Colney Hatch.

1879.—The first meeting of the After-care Association was held on the 5th June 1879, at the house of Dr. Bucknill, Wimpole Street. Here was the cradle of the society. Amongst those present were Drs. Bucknill, Lockhart Robertson, and Hack Tuke, who has been throughout a strong believer in, and staunch supporter of, the objects of the association. It was moved and seconded, "That this meeting do form itself into an association," and subsequently, "that the object of this association is to facilitate the readmission of female convalescents from lunatic asylums into social and domestic life." Dr. Bucknill was the first president, and Dr. Clave Shawe and Rev. H. Hawkins, honorary treasurer and secretary.

1880.—In the following year the late Earl of Shaftesbury kindly consented to become president of the society. Referring to the paper on after-care he had written, "Your letter entitled 'After-care' has deeply interested me. The subject has long been on my mind, but like many other subjects it has passed without any effectual movement on its behalf. Tell my friend Dr. Bucknill that I shall be happy to serve under his presidency in so good a cause."

1881.—Lord Shaftesbury presided, for the first time, at the anniversary meeting held at the house of Dr. now Sir Andrew Clark, in Cavendish Square. Dr. Clark enforced the importance of after-care as a frequent condition of complete restoration to health. Among ladies present were Ladies Lyttelton, Frederick Cavendish, and Brabazon; Mrs. Gladstone, &c. It may be mentioned that among other ladies who have shown an interest in the movement have been Miss Agnes Cotton, Miss Emma Cons, Miss Louisa Twining, &c.

1882.—Dr. John Ogle was good enough to receive the association in the following year, when Lord Shaftesbury, who again presided, and Dr. Hack Tuke called attention to the need of some house or room in which the association's business could be transacted.

1883.—The next anniversary was held

at Lord Cottesloe's, in Eaton Place. Lord Shaftesbury stated his belief that the After-care Society was required to supply a real want, and that it was in his own phrase a "seed-plot," from which, in time, good results would spring.

1884.—The annual meeting of 1884 was memorable as being the last occasion when Lord Shaftesbury (who had presided at the anniversaries since 1881) was in the chair. The tryst was Lord Brabazon's, who though absent from home, placed a room at the disposal of the association. The president remarked "that he considered a 'home' a necessity, and did not see how such a resort could be dispensed with." This remark followed upon a statement by the hon. secretary, that among more than 200 convalescent homes on the register of the Charity Organisation Society not one was specially designed and available for *mental* convalescents. (N.B. In 1890 the number of such homes was 263, but still not one appropriated to this class of invalids.) In the same year a meeting was held at the Mansion House, and a bazaar organised at the Kensington Town Hall.

1885.—Two meetings in 1885 were held at Bethlem Royal Hospital, by the kind arrangement of Dr. Savage, a valuable friend of the association. On one of these occasions the chair was taken by Dr. Ogle, on the other by A. J. Copeland, Esq., the treasurer of the hospital.

1886.—The year 1886 is distinguished in the annals of the association, for it was that in which Lord Brabazon accepted the office of president. He remarked, at the yearly meeting held at his house in Lancaster Gate, that Lord Shaftesbury's interest in after-care had influenced him to undertake the work as a "legacy." On the same occasion a resolution was carried: "That the Committee be authorised to employ a paid secretary to carry on the work of the society," the result being that a unanimous appointment to this post was made of Mr. H. W. Roxby, who had been associated with the Society for the Care of Waifs and Strays. Up to this date, no one officially connected with the after-care project possessed sufficient leisure to be able to devote due time to its promotion. Hence, though the existence of the society was kept in evidence, and interest in its designs sustained, yet practical benefit, though by no means absent, was yet scanty; but on Mr. Roxby's appointment, distinct progress was made. Reference to the particulars of this progress will be made in conclusion, but it should first be noted that the same year in which a new

president took office, and a paid secretary was secured, the association had the honour to receive an intimation that H.R.H. the Princess Christian would be willing to accept the office of patroness. Thus the year 1886 is memorable as one of new departure. It remains to indicate some details of progress made.

Working Associates, who undertake some special work on behalf of the association have been appointed. There are about twenty on the list. These members of the society may render very useful service by finding suitable homes for convalescents, by visiting and reporting on their temporary inmates, thus causing both hosts and guests to feel that they are looked after, and kept under notice. Associates can also from time to time give valuable help to discharged patients by following them up either to the work-houses to which they may have been transferred, or to their own homes.

Homes.—Suitable homes have been found in various localities where convalescents requiring change of scene and air have been boarded out. In all cases the care of convalescents while in these homes is entrusted to some lady in the neighbourhood, and the homes are inspected before any case is sent, and visited afterwards by a voluntary inspector. About thirteen such homes have been inspected and utilised.

Cases Helped.—Nearly 100 cases from about nineteen asylums have been helped, since 1886, by the association; several were previously assisted.

Since Lord Brabazon, now the Earl of Meath, became president, both the monthly meetings on the second Thursdays and the anniversary have by his kind permission been held at his house, 83 Lancaster Gate. At the former the current business of the society is transacted; applications for help are considered; and relief, in suitable cases, sanctioned. During the past official year (1888-1889) fifty cases were brought before the committee. Of these twenty-four were boarded out in the country, and others relieved by grants of money and clothing. In nearly every case assisted, suitable employment was afterwards found. Besides these, a large number of cases, not coming under the rules of the association, have been helped to obtain relief through other channels. Further information may be obtained through the secretary, Mr. H. T. Roxby, Arden Lea, The Drive, Walthamstow.

H. HAWKINS.

AGE, Influence of. (See STATISTICS OF INSANITY.)

AGENCY (Law of), *in relation to insanity.* See articles on CONTRACT and EVIDENCE.

It is here necessary to distinguish between the insanity of an agent and the insanity of a principal.

Insanity of an Agent.—A lunatic, or other person *non compos mentis*, cannot do, as agent or attorney, any act binding upon the principal, *unless such act would have been binding upon himself, if he had been principal and not agent?* The first part of the proposition is adapted from Story's "Agency," p. 9. The words in italics are the present writer's, and are thought to be rendered necessary by the modern judicial doctrine that the bare existence of insanity is not fatal to civil capacity: *cf. Drew v. Nunn*, 1879, 4, Q. B. D. pp. 668-670.

"The real principle," said O'Brien, J., in *Grove v. Johnston*, 1889, 24 L. R. Ir. at p. 363, "I would take to be that mental health, like physical health, is but a form of ability to perform, which the law makes an understood condition of the contract, and that the nature and effect of that disability must vary according to the thing to be performed." The case from which this quotation is made was an action by the secretary to a grand jury against the sureties of a barony cess-collector, on a bond for the due performance of the duties of the office. The defendants pleaded that immediately after delivery to the collector of the warrant in respect of which the alleged liability arose, and before he could collect any of the moneys sued for in the action, he became and continued a lunatic, was *wholly incapacitated from acting under the warrant*, was not able to collect, and did not in fact collect any of the moneys sued for, and that the defendants were thereby discharged from liability on the bond. It was held by the Irish Queen's Bench Division and Court of Appeal, that the defence was good. "No doubt," said O'Brien, J., "the mind is required in all business, and the want of it would not be an excuse for not supplying a cargo of corn; but the contract in this case, which is for the receivership of public taxes, is one attended with a personal legal authority that does not exist in other cases."

Insanity of a Principal.—Although as Brett, L.J., said, in *Drew v. Nunn*, *ubi sup.*, "the law upon this subject stands upon a very unsatisfactory footing," it is possible to lay down one or two propositions with comparative confidence.

(1) The bare existence of mental disease neither incapacitates a man for appointing an agent, nor, if supervening after

such an appointment has been made, *ex necessitate* revokes the agent's authority: *Drew v. Nunn, ubi sup.* [The degree of mental alienation which will work such an incapacity or revocation has not been judicially defined. According to Lord Bramwell, it must amount to *dementia*. Brett, L.J., considered that incapacity to *do* any legal act must exist. Cotton, L.J., reserved to himself the right to consider whether or not the authority of an agent could in cases like *Drew v. Nunn*—see article EVIDENCE—be put an end to, until there had been a commission in lunacy.]

(2) Where a principal, who has held out another as his agent, subsequently becomes insane, and a third party deals with the agent, without notice that the principal is a lunatic, the principal cannot repudiate the contract assumed to be made on his behalf.

The following statutory points should be noted:

(a) Any person making any payment or doing any act, in good faith and without notice, in pursuance of a power of attorney, is not liable in respect of such payment or act by reason that the donor of the power had previously become lunatic or of unsound mind. (Convey. Act, 1881, s. 47.)

(b) A power of attorney, expressed to be irrevocable, and made for value, is not revoked by the lunacy of the donor. (Convey. Act, 1882, s. 8.)

(c) If a power of attorney is expressed to be irrevocable for a fixed period not exceeding one year, then in favour of a purchaser with or without notice, it is not revoked for and during that period by the lunacy or unsoundness of mind of the donor. (Convey. Act, 1882, s. 9.)

A. WOOD RENTON.

AGEUSIA, or **AGEUSTIA** (*ἀ*, neg.; *γεῦσις*, taste). A diminution or abolition of the power of perceiving the flavour of food; absence of the sense of taste. Apart from any centric or peripheral lesion, a symptom in insanity and hysteria. (Fr. *ageusie* or *ageustie*; Ger. *Geschmacksmangel*).

AGEUSTIA PARALYTICA (*ἀ*; *γεῦσις*; *παράλυσις*, palsy). The loss of taste depending on nervous disease, whether functional or organic.

AGHEUSTIA. (See AGEUSTIA.)

AGITATION (*agitatio*, from *agito*, I trouble). General excitement of the mental or bodily powers; perturbation, mental emotion, or disturbance arising from the violence of some prevailing passion.

AGNEA or **AGNOIA** (*ἀγνοία*, from *ἀγνοέω*, I am ignorant). The mental con-

dition of a patient who does not recognise the persons or things around him. (Fr. *agnoie*; Ger. *Besinnungslosigkeit*, *Unwissenheit*, *Unkunde*.)

AGONY (*ἀγῶνία*, from *ἀγών*, strife or contest). Extreme anguish, fear, or sadness of mind. (Fr. *agonie*; Ger. *Angst*.)

AGORAPHOBIA (*ἀγορά*, an assembly or market-place, and hence any open space; *φόβος*, fear). An emotional neurosis characterised by fear of open spaces. (Fr. *peur des espaces*; Ger. *Platzangst*.) (See IMPERATIVE IDEAS.)

AGRAMMATISMUS (*ἀ*, neg.; *γράμμα*, letters). Inability to form a grammatical sentence; a premonitory symptom of certain forms of insanity. (See AKATAPHASIA.)

AGRAPHIA (*ἀ*, neg.; *γράφω*, I write). Inability to form the letters in writing; disease of the motor speech centre whereby the power of writing is abolished, even when the hand centre is intact and the movements of the arm are unimpaired. The same result may follow an isolating lesion beneath the cortical speech-centre. Thought, and in some cases speech, may be performed correctly while capability of writing is lost. (Fr. and Ger. *agraphie*.)

AGRAPHIA ABSOLUTA (*ἀ*; *γράφω*; *ἀβ*, from; *solvo*, I loosen). A condition in which the patient is unable to write even a single letter.

AGRAPHIA AMNEMONICA (*ἀ*; *γράφω*; and *ἀ*, not; *μνημονικός*, pertaining to memory). The form in which letters or words can be written, but they convey no meaning; due to loss of memory.

AGRAPHIA ATACTICA (*ἀ*; *γράφω*; *ἄτακτος*, out of order, irregular). The form in which the power of writing the separate letters is lost; due to loss of power of co-ordinating the muscles.

AGRAPHIA LITERALIS (*ἀ*; *γράφω*; *literalis*, pertaining to letters). A condition in which the patient is unable to write a single letter.

AGRAPHIA VERBALIS (*ἀ*; *γράφω*; *verbum*, a word). The form in which the patient can write a series of letters readily enough, but these convey no sense.

AGREEMENT (Fr. *agréer*, from *gré*, free goodwill to do a thing). Concord, accordance, harmony. The consciousness of agreement has been called the second fundamental property of intellect; it implies an identifying process or a feeling of recognition.

AGRIOTHYMIA (*ἄγριος*, fierce; *θυμός*, disposition). Furious insanity, maniacal furor. Also used as a synonym of Homicidal insanity. (Fr. *agriothymie*; Ger. *wilde Gemüthsart*).

AGRIOTHYMIA AMBITIOSA (ἄγριος; θυμός; *ambitiosus*). The insanity of conquest, the irrepressible desire to destroy or exterminate nations, spoken of occasionally as Alexanderism.

AGRIOTHYMIA HYDROPHOBICA (ἄγριος; θυμός; ὕδωρ, water; φόβος, fear). The irrepressible desire to bite which is said to exist in rabies.

AGRIOTHYMIA RELIGIOSA (ἄγριος; θυμός; *religiosus*). The irrepressible desire to uproot and destroy other religions and those cultivating them—Mohammedism.

AGRYPNIA (ἄγριος, wild or restless; ὕπνος, sleep). A term for wakefulness or sleeplessness; one of the premonitory symptoms of various forms of insanity. (Fr. *agrypnie*; Ger. *Schlaflosigkeit*).

AGRYPNIA EXCITATA (ἄγριος; ὕπνος; *excito*, I stir up). Sleeplessness due to mental excitement with listlessness as to surrounding objects.

AGRYPNIA PERTESA (ἄγριος; ὕπνος; *pertoesus*, disturbed). Sleeplessness from bodily disquiet, with attention alive to surrounding objects.

AGRYPNIA SENILIS (ἄγριος; ὕπνος; *senilis*, pertaining to old age). The sleeplessness of old age.

AGRYPNOCOMA (ἀγρύπνος, sleepless; κῶμα, lethargy). A lethargic state of wakefulness generally attended with low muttering delirium, often occurring in the most severe cases of acute delirious mania; a synonym of coma vigil. (Fr. *agrypnocoma*; Ger. *Schlaflosigkeit mit grosser Neigung zum Schlaf*; *Wachschlafsucht*.)

AGUE. (See POST-FEBRILE INSANITY.)

AHYPNIA (ἀ, neg.; ὕπνος, sleep). Sleeplessness.

AIDOIOMANIA (ἄδῶια, the generative organs; μανία, madness). A synonym of Erotomania, which includes Satyriasis and Nymphomania.

AKATAMATHESIA (ἀ, neg.; καταμαθήσις, understanding). Inability to understand ordinary conversation; a symptom of various forms of chronic insanity.

AKATAPHASIA (ἀ, neg.; καταφαίνω, I declare). Inability to form a perfect sentence. Applied to a syntactic disturbance of speech as opposed to the faulty use of words. The correct diction of a sentence in the grammatical languages presupposes—(a) unbroken flow of words; (b) perfect grammatical diction; (c) correct arrangement of words. The absence of any of these constitutes Akataphasia.

AKORIA (ἀκορία, from ἀκορος, untiring). With Hippocrates it means moderation in eating; but in Aretæus it is used in regard to drink in the sense of insatiable desire. Bulimia.

ALALIA (ἀ, neg.; λαλέω, I talk). A term originally used by Lordat to denote the defects of speech resulting from disease of the cerebral hemisphere, defects not of articulation as in general paralysis, but of the elements of speech. In this sense it is synonymous with the Aphasia of Trousseau, and the Aphemia of Broca. By others it is used to denote a more or less complete paralysis of the muscles of articulation, symptomatic of bulbar paralysis. When the loss of power is confined to the lips, b, f, m, o, p, v, and u are the letters lost; when the tongue is affected, d, e, g, h, l, n, r, s, and t are incapable of correct pronunciation; and when all the letters are gone, the Alalia is said to be complete. (Fr. *alalie*; Ger. *Sprachlosigkeit*.)

ALALIA LITERALIS (ἀ, λαλέω; *literalis*, pertaining to letters). Incapacity to pronounce the letters properly; also used as a synonym of stammering.

ALBUMINURIA. (See BRIGHT'S DISEASE.)

ALCOHOL. (See SEDATIVES.)

ALCOHOL, Use of, as a Beverage in Asylums.—Five years ago the writer obtained returns from most of the asylums in Great Britain and Ireland in regard to the use of alcoholic beverages in these institutions. The number of patients amounted to 53,855. Since that period the tendency has been to lessen the amount consumed, but the following statements may be regarded as substantially accurate.

Out of the 129 county and borough asylums and registered hospitals in Great Britain and Ireland, replies were obtained from 100. Of these one-half report the non-use of alcohol other than medicinally.

Among the 50 in which alcohol continues to be used, eight superintendents express themselves strongly in favour of the retention of alcohol as a beverage. The presumption is that in those asylums in which alcohol is used, the superintendent approves of it rather than otherwise.

In regard to the 50 in which alcohol is disused, one superintendent has had suspicion that this course has proved injurious, and another found the attempt endanger the peace of the household.

Eight superintendents have observed no results favourable or unfavourable.

Thirty superintendents hold that they have observed very beneficial results from the course pursued. The improvement usually refers not only to the patients, but to the discipline of the asylum.

In most of the remaining cases, the superintendent was unable to make any

comparison, because beer or wine had never been given in the asylum.

The cost of alcohol per patient per annum (calculated upon the expenditure on alcohol and the average number of patients resident) is 12s. for Great Britain and Ireland, being at the rate of 14s. for England and Wales, 8s. 8d. for Scotland, and 4s. 8d. for Ireland. The total expenditure for alcoholic drinks is £32,000. This shows a marked decrease since 1878, when Dr. Brushfield made a similar calculation for England and Wales, and found it to be close upon 30s. per patient per annum.

If we take the British asylums in which beer is given as a beverage, the annual average cost of alcohol per patient is £1 11s. 2d.

The cost of alcohol is 3s. 9d. per patient per annum in the fifty asylums where it is not allowed as a beverage, being only used as a medicine, including several cases in which beer is occasionally given to attendants. In sixteen of the non-alcoholic asylums, milk, tea, coffee, cocoa, or beef-tea is given to the patients and attendants, and in fifteen of these asylums a money allowance, and in two, uniform is granted to attendants.

In order to ascertain the relative cost of an asylum in which alcohol is given, and one in which substitutes are provided, we add the relative cost of beer or porter and of milk, as calculated by Dr. Brushfield :

		Per gallon.	
		s.	d.
1.	{ Beer at 16s. per barrel	0	5.35
	{ Porter at 29s. 8d. per barrel	0	9.88
	{ Milk supplied from the farm, valued at	0	10
2.	{ Ditto, by contract	1	0
	{ Skim milk (only half the cream removed)	0	6

Dr. Pringle (Glamorgan Asylum) found that the cost of beer supplied to his patients was £260 a year, and that this sum would purchase rather more than 14 gallons of milk daily, in addition to what the patients already had. He believes, however, that 10 gallons are quite sufficient, which would cost £159 a year, thus effecting a saving of £100, which Dr. Pringle would devote to the attendants. The following are the regulations adopted by the Committee of Derby Asylum in 1884, on the recommendation of Dr. Murray Lindsay:—(1) Beer to be discontinued as an article of ordinary diet, water taking its place; (2) the issue of extra beer twice a day to working patients to be discontinued, and the following more nutritive articles of food to be substituted and given to those patients who really do

work, but not to all the so-called "employed," some of whom are merely nominal workers: Tea, coffee, milk (when practicable), oatmeal drink, meat dinner in place of soup dinner, cheese, &c.; as extra, tobacco to some, to be given at the direction of the medical officer, and according to the requirements and tastes, to a certain extent, of the patients; (3) the issue of beer and ale to male and female attendants and servants to be discontinued, a money equivalent being given in lieu of beer and ale—viz., (a) To male attendants and servants, £3 5s. per annum; (b) Female attendants and servants, £2 15s. per annum; (c) Chief male attendant, £4 10s. per annum; (d) Baker, £4 10s. per annum.—(See "On Alcohol in Asylums, chiefly as a Beverage": *Journal of Mental Science*, January 1885.)

THE EDITOR.

ALCOHOLISM.—Alcoholism belongs to Philosophy, Sociology, Hygiene, Medicine, and History; all sciences of interest for the alienist. We are, however, compelled to curtail this article and to proceed at once to the well-known symptoms of Alcoholism. We shall specially direct our attention to two points: First, the morbid mental state in drinkers, and, secondly, a point of general pathology concerning the special development of alcoholism in the intemperate with mental defect (abnormal forms of intoxication).

Definition.—Since Magnus Huss wrote under the name "Alcoholism," all pathological phenomena caused by the consumption of alcoholic liquors are comprised in it. We shall confine our investigation to the symptoms of the brain and spinal cord, throwing aside everything not connected with the nervous system.

It is extremely difficult to give a uniform description of intoxication, as it has become, particularly in our days, a very complicated matter. The numerous varieties of the alcohol of commerce, pure and mixed, their combination with other essences of diverse qualities, which act as well as alcohol, not to mention other circumstances under which the poisoning may take place—age, sex, profession, individual and hereditary predisposition, &c.—all these factors involve an inextricable mass of secondary intoxications, from which it is difficult to extract a series of general characteristic symptoms common to all of them, which might represent a type of uniform intoxication produced by a poison with the indefinite name of "alcohol." We may say that there are as many kinds of alcoholism as there are alcoholic liquors, and as there are drinkers. But accepting certain condi-

tions of observation, and taking as granted that on the one hand pure alcohol, as ethylic alcohol, is made use of, and on the other hand, that it is taken under ordinary conditions by a person otherwise considered normal, we may create a type of alcoholism, which may serve as a term of comparison for the analysis of other cases.

We cannot say at what moment the use of fermented liquors ceases and the abuse begins. Alcohol, an organic product useless to the animal economy under ordinary conditions of health, must *à priori* be considered as a deleterious substance. Although its effects are only temporary and without serious consequences in a man with a good constitution who takes it in small quantities on rare occasions, it produces lasting effects and progressive lesions in a man of less resistance when taken frequently and in large quantities. Alcohol is not only a poison for the individual. "First considered as poison," says Lancereaux, "then as a remedy, and in the sixteenth century as a universal panacea," which for long the rich only were able to afford, alcohol has become by degrees an article of general consumption; it has become an ethnic poison from the day when, the consumption surpassing the production, it had to be prepared from all substances capable of fermentation.

The adulteration of good and pure alcohol, for the purpose of making it meet the factitious wants which have grown up everywhere in modern society, has been one of the most powerful factors for the degeneration of our race. Moreover, alcohol has been a more dangerous means of conquest than perhaps the cannon. Introduced to the savage tribes, the fire-water has done more damage than war.

Alcoholism, however, has raged in all epochs of history, but its clinical description, so simple at a time when the intoxicating drinks were non-adulterated wine only, has since become singularly complicated, and has in our times become a most difficult pathological question.

Nowadays, we are no longer allowed to consider the poison in only its physiological and pathological effects, but we have to consider the drinker besides. The mode of reaction after the use of alcohol has a clinical importance equal to that of the action of the poison itself, because it is the reaction which so much modifies the form of alcoholism. The description of alcoholism, therefore, may be divided into two sections of equal importance: (1) the toxicology of alcohol, in a strict sense, and (2) the analysis of intoxicated patients in reference to their various reactions.

This division will form a synthesis containing all our knowledge of modern alcoholism.

Considered from a purely philosophical and psychological point of view, and with regard to its connection with social conditions, alcoholism may be regarded as a social disease, having its *predisposing and exciting causes, course, consequences, and treatment.*

Causes.—If drunkenness has been a vice of all times, alcoholism is principally the disease of the present century. We cannot, indeed, compare the alcoholic disorders, of which ancient authors speak, with those we observe in our days, either with regard to symptoms or consequences. The evil has gradually grown in its proportions.

Its *first cause* appears to lie in the dissemination of alcohol, and of fermented liquors in all classes of society, which dissemination is favoured and engendered by the progress of our modern civilisation, in consequence of the great extension which the industry of our century has undergone. It is true that progress, when it is not equally and wisely distributed over all classes of society susceptible of progress, is partly neutralised, and contributes to the dis-equilibration of social conditions.

History shows us that the height of civilisation always coincided with the commencement of a reaction which terminated in complete fall. It would be well for us to profit by the teachings of history, and to look with the greatest alarm at the disastrous effects of alcoholism, for it may be made responsible, if not for the greater frequency of a great number of diseases, certainly for their aggravation.

The progress of commerce and its manifold openings has made alcohol accessible to tribes hitherto untouched by civilisation. The consumption of wine, formerly reserved for the rich, has increased everywhere, and wine has become the ordinary drink. The artificial want thus created has caused the manufacture of fermented liquors to increase. As the demand surpassed the production, and as, at the same time, many wine-growing countries were ruined by the Phylloxera, a double start was made, partly to adulterate natural wine, and even to manufacture it, partly to distil alcohol from all sorts of substances with the view of satisfying people with a little money and to provide work for districts little favoured with regard to wine growing. It is easy to follow the progress of alcoholism in proportion to the development of industry. The number of inns and public-houses has

gradually grown, and they are even found in the most distant villages. In some districts of France there is one public-house to forty inhabitants. Lastly, the great centres, which are most active and most productive, but also most overcrowded, have become centres of alcoholisation.

Favouring causes have been added to the primary causes of alcoholism, the principal of which consists in the indifference too long shown by the different governments to the destructive effects of alcohol, in consequence of which too great liberty has been given to the manufacture, circulation and consumption of a poison universally acknowledged by hygienists as prejudicial to the public health. Laws tending to suppress drunkenness have been passed in various countries, but they have proved insufficient, and above all they have not been efficiently applied. The result is that a poison whose destructive influence on the race has been proved by experience, is left to the free disposition of voluntary drinkers, and especially of those unaware of its consequences.

Other causes lie in the imperfect hygiene and education and in the insufficient feeding of the poor, in the hardships of certain professions, which are too little remunerative and represent actual slavery in our free society, and end in pauperism itself, which altogether favours the action of the causes of social ruin. There exists a vicious circle between pauperism and alcoholism, the former contributing to the genesis of the latter, and the latter in its turn contributing to maintain the former. Alcoholism receives great support from a certain state of mental degeneration of the more advanced populations, the principal characteristics of which consist in constant craving for all sorts of intellectual excitement and of gross animal enjoyments, in a certain depravation of taste, and in a diminution of æsthetic sentiment, a state of demoralisation which cannot escape our observation.

Heredity, at last, is superadded to all these preceding causes; it acts as energetically as disastrously; the craving for strong drink is transferred from father to son, in many cases becoming aggravated. In short, alcoholism has nowadays become general, the consumption of fermented liquors is a usual thing, and has become a custom; persons who drink only water are very rare in proportion to the whole number of those who take alcohol.

Indeed, in consequence of the cumulative action of these causes, alcoholism may with the exception of certain cases which become more and more rare, be considered

the sad privilege of individuals in possession of a peculiar mental condition. After having poisoned themselves unintentionally for a long time, and through the power of circumstances having become victims of a nefarious industry, men no longer drink as formerly, they poison themselves intentionally. The mental state resulting from numerous special hereditary transformations, seems to predispose them to drinking, as the analysis later on will show. The liking for strong drink is not innate in human nature; it is acquired when it is not transferred by heredity. Alcohol produces at first a certain intellectual excitement, which man seeks and likes to reproduce, and then the great mistress habit establishes herself, if no reaction takes place; this is supported by the ignorance of one, and by the absence of morality or will of the other. Drunkards recruit themselves, nowadays, partly from among the descendants of drinkers, partly from among those who have lost their mental equilibrium.

Mental State of Drunkards.—Is there a peculiar mental state which predisposes an individual to indulge to excess in drinking? Is everybody liable to become a drunkard? These are psychological questions the solution of which not only interests us from the clinical point of view—properly speaking—of alcoholism, but also from a forensic standpoint. Is it not evident, that if in consequence of certain tendencies of their innermost nature some men are more inclined than others to commit excesses in drinking, their free will appears to be lessened and to that extent also their responsibility? This question has greatly advanced, especially since the influence of heredity in mental pathology has obtained the supremacy among the ætiological factors, since one no longer considers a patient as an isolated case, but as one of the links in a long chain of units (ascendants and descendants), upon whom is stamped, on the one hand, the elements of his being, which he transfers, on the other hand, to those who succeed him.

Individuals who poison themselves with alcohol unintentionally are very numerous. In analysing the different ways in which they poison themselves, and trying to find out by which psychological process they become intemperate drinkers, we shall prove that their brains are imperfect and act irregularly.

In the *first group* we may place those individuals in whom the moral sense is only feebly developed or completely obliterated. These are the *morally insane*. In these the instincts are perverted or pre-

dominant; they are no longer in accordance with the normal requirements of human nature, with the intellectual functions and with the conventional principles of morality as adopted by civilised nations. The higher faculties no longer exercise any control over the instincts. This group comprises the drunkards properly so-called, to whatever social class they may belong, united by one common band: *the predominance of the instincts over the higher faculties.*

To the anomalies of the instincts we may oppose *the anomalies of proclivity.* The intemperate of this class form a *second group.* They possess a sense of morality, but their *intellectual faculties* are not in order, and especially among these the will is defective. This group comprises alcoholics who have a taste for alcohol, and alcoholics from influence and example, but among all these the predominant pathological character is *weakness of will*; there is a struggle between proclivity and will, but the latter succumbs. If the patients of the first group sin, they do so from their instincts; these latter have an intellectual vice. We find among them stupid and intelligent men, all deprived of their energy, prejudiced and pusillanimous creatures. Many labourers belong to this group; one drinks to boast, another to be praised, another for fear of being laughed at or in order to make himself pleasant; others again are professional victims of the habit, against which they have no power to contend. Whatever the other feelings may be which they obey in committing excesses in drink, this is certain, that although quite clear as to the evil they are doing themselves they have not the power to resist. Some even enchained by their habit never think of struggling against it, and try to excuse or explain their excesses by reasons which show still more the absence of mental equilibrium.

In a *third group* we shall range the intermittent drinkers, known under the name of dipsomaniacs, men with still weaker brains than those beforementioned, who at ordinary times do not show any anomalies of instinct or of tendencies, but whose will is periodically subject to complete paralysis. They have not any liking for strong liquors, and in the intervals between the attacks they are quite sober. But as soon as the attack comes over them, the patients give themselves up to most intemperate debauchery in alcohol, in consequence of an absolutely irresistible impulse which makes them so many irresponsible automata absolutely desperate, because they feel they are weaker than their impulse.

Résumé.—The patients of the first group, deprived of all moral sense, *never strive* against the temptation; those of the second group are able to strive and do *strive sometimes*; those of the third group are unable to strive successfully, although they are *always striving.* These three groups may be headed:

1. The intemperate in consequence of anomalies of the instinct.
2. The intemperate in consequence of anomalous tendencies and defect of intellectual equilibrium.
3. The intemperate in consequence of periodical paralysis of the will—impulsive drinkers.

Considered as a whole these three groups show us in the intentional drinkers constant mental defects on the part of the instinct, intelligence and will, which morbid conditions we may sum up in one word—absence of equilibrium in the cerebral functions. These considerations establish one fact—viz., *that the great majority of drinkers are predisposed, disordered and defective.*

If we now examine the hereditary antecedents of these drinkers, particularly those with cerebral symptoms, we shall be convinced that they become intemperate in consequence of an innate disposition. Among 102 cases which we have carefully examined, we have found 63 cases of heredity. On the other hand, we have in the ancestors of drinkers, to whatever category they belong, very frequently found alienation. If we consult our statistical returns with regard to this special point, we find there all forms of insanity given: mental weakness and derangement, insanity engrafted upon a neurosis, hysteria and epilepsy, the most elementary psychoses as well as the most complicated; melancholia, mania, periodical insanity, persecution-mania; cerebral disorders with organic lesion; general paralysis, softening, apoplexy, &c. These considerations, which every medical man will easily be able to test, show us the mental state of the drinker almost overwhelmed by a number of cerebral affections in the family, with which he is connected by the close band of a morbid consanguinity. This is the conclusion of our short psychological sketch; the drinker is, nowadays, in the great majority of cases, a man with abnormal brain, with neuropathic diathesis. Excess in drinking is only one of the numerous characteristic symptoms of mental ruin.

The **consequences** of alcoholism are well known: degradation of the intellectual faculties and mental degeneration with regard to the individual; for the descen-

dants they are, the tendency to drink, epilepsy, insanity, physical sufferings, idiocy, and lastly extinction of the race. From a social point the consequences are: increase of mortality, diminution of the number of births, diminution of moral energy and of the rate of intelligence; in all, weakening of the life power of the population.

Different Forms of Alcoholism.—The drinker presents himself to the observer under four different aspects: *drunkenness* (*q.v.*), *alcoholic delirium* (*delirium tremens*), *sub-acute alcoholic delirium*, *chronic alcoholism* (*q.v.*)

1. Alcohol taken in very great quantity in a short time, produces acute symptoms, which are immediate but temporary—*drunkenness*.

2. Alcohol taken often and in great quantities, or if the drunkenness is nearly continuous, or if the individuals are not very strong in brain, accumulates in the organism without being at any time completely eliminated. Then appear severe acute symptoms of longer duration than drunkenness—*delirium tremens*.

In all these cases drunkenness is only an epiphenomenon, a storm, which may be isolated and may never return. Delirium tremens itself is not inevitable: it is brought about in consequence of long continued considerable excesses, and a peculiar susceptibility of the brain in certain individuals. Chronic alcoholism is only inevitable in habitual drinkers. The other acute symptoms (1 and 3) complicate chronic alcoholism and increase during the course of the disease at irregular intervals, which depend on the patient's way of living.

3. *Sub-acute alcoholism*, being only an anomalous form of intoxication, will be treated of under the description of alcoholism in predisposed patients.

4. Alcohol regularly or irregularly introduced into the system for a long time, in doses not sufficient to cause immediate symptoms, produces general disorders and progressive lesions, the *ensemble* of which constitutes *chronic alcoholism*, characterised by weakening of the faculties, by premature dementia, a form of disease common among inveterate or long enduring drinkers.

Predisposition and Alcoholism; Abnormal Forms of Alcoholism.—We shall consider the different reactions to alcohol in a *pathological* individual—in an individual already under the influence of a nervous incubus—and study the more or less profound modifications of the common form of alcoholism in consequence of these two factors, *individual predisposition and*

poisoning. Here we shall find the explanation of the manifold aspects in which the drinker presents himself to medical observation. The knowledge of the soil throws light on numerous cases for long under dispute, which it is difficult to place in the same category. To understand the importance of this part of the article, we must remember the great step made forward in nosography by considering the individual and his reactions in connection with his pathological taints. We know that diseases do not develop in the same manner in individuals with a certain diathesis as in normal individuals. Prognosis is completely altered by this knowledge. A fracture may be complicated by contractures in hysterical patients; acute bronchitis is interminable in an arthritic individual; acute pneumonia changes its forms in an old man; anthrax may be fatal in a diabetic patient; simple angina may in a latent syphilitic cause very serious symptoms; and, lastly, in a weakened individual an excess in drink may involve dangerous consequences.

We have seen that in many cases the drinker is a predisposed individual presenting predominant symptoms in the nervous system, and has to be considered as possessing primordially a nervous system with feeble resistance. This is the only plausible explanation of the localisation of the symptoms of intoxication in this soil, in accordance with the law of general pathology that morbid symptoms mostly appear on the part of the *loci minoris resistentiæ*.

The reconsideration of the ancestors of drinkers has shown us that a great part of them belong to the neuropathic. This predisposition has as first consequence that *alcoholic symptoms easily appear* after a number of excesses, which would not have affected a normal individual. We have seen at the same time that a great proportion of drinkers (about two-thirds) were sons of drinkers, and that consequently *the excesses of the ancestors seem to influence the excesses of the descendants* (similar heredity). Another consequence of predisposition is *the tendency to premature excesses*, even in very early age.

The influence of predisposition, however, will become still clearer by a methodical consideration of the history of alcoholism.

(1) *Predisposition in Drunkenness.*—A predisposed person is most easily inebriated; the slightest excess overthrows the unstable equilibrium of his faculties, and, if he does not keep absolutely sober, he will soon be a victim of drunkenness. There is a certain amount of truth in the assertion that alcohol is a criterion of the

psychical resistance of individuals. We know that some men are able to take enormous quantities of intoxicating liquors without any symptoms of drunkenness, but we also know that this first resistance becomes in the same individuals much weakened by age and the wearing out of the organism by prolonged excesses.

One of the first effects of alcohol is the *dis-equilibration of the intellect*, and this is much easier in a predisposed individual, whose mental equilibrium is already unstable at ordinary times. Consequently, alcohol creates an abnormal opportunity of revealing the innermost nature of the patient to the outside world in a most striking manner; the slightest defects of the mental state are exhibited; the dominant feature of the character becomes exaggerated; the instinct, desires, and tendencies, no longer subject to the regulating control of the higher faculties, have free course; the animal nature is set free. We see already the variety of forms which the drunkenness of a predisposed individual may present. It is sufficient to know in detail the mental situation of a patient to be able to foresee to some extent what observation afterwards will confirm. A degenerated individual will not rave like an ordinary lunatic, neither will he be drunk like other people. A man who is deprived of his moral sense becomes, during drunkenness, disgusting and obscene in word and action; a man with a morose and taciturn character will be sorrowful; he likes in his drunkenness to sigh, to weep, and to fancy lamentable stories; he will speak of death, and see everything black. A predisposed individual who is exuberant, exalted, and does not know any measure in his words or actions will almost certainly be merry. More exuberant than ever, he will exaggerate his personality, will become ambitious, will speak of his powers, of his luck, and of his chances; he will see everything in a bright light. A weak-minded fellow will in his drunkenness be absurd and foolish. A predisposed individual with brilliant faculties will become sparkling with wit, and will evolve thousands of lucubrations, each one more fantastical than the other.

When the predisposition is of a well-marked nature, if it is caused, e.g., by the presence of melancholia in the ancestors, the drunkenness is still more accentuated. It is not rare to see the drinker manifest some delirious ideas reminding us of his special predisposition; suicide in drunkenness in consequence of a series of melancholy ideas indicates the same.

The two principal attitudes of the

drinker, sadness and gaiety, give rise in a predisposed individual to two well-defined forms of drunkenness, *melancholy and maniacal drunkenness*. In the former as a short attack of melancholia we find the elements of that psychosis: imaginary accusations, depression, scruples, ideas of unworthiness, and attempts at suicide. In the second form we find an attack of mania of some hours' duration, with the symptoms peculiar to that derangement: exaltation of the faculties, disorder, and incoherency in words and actions. In both forms even hallucinations have been observed.

The *convulsive drunkenness* of Percy finds its place here, and is described elsewhere. It is a form essentially peculiar to predisposed individuals, if it does not conceal genuine epilepsy, and if it is not caused by a poison producing convulsions.

Predisposition reveals itself in a drinker in his actions and words still better than in his attitude. If we remember that "degenerated" is in many cases synonymous with "instinctive" or "impulsive," we shall understand how easily drunkenness will favour the unchaining of all impulses. Homicide, robbery, arson, and extravagant or reprehensible actions may be committed in drunkenness. Therefore, in analysing the mental state of a man who has under these circumstances made himself guilty of a trespass or crime we shall always find him defective. These actions seem sometimes caused by strange ideas which have suddenly grown up in the brain of the drinker, but still oftener they present the aspect of veritable unpremeditated impulse.

We also have to mark in the drunkenness of predisposed individuals the sudden occurrence of delirious ideas (ideas of persecution, of exaltation, &c.), of which we often find the trace in the patient's past history.

As quite a special form we have to mention the *drunkenness of the epileptic*, who, impulsive already on account of their neurosis, become particularly dangerous by their attacks, their brutality, and their tendency to mischief. Alcohol besides aggravates this neurosis; this is often manifested by a series of dangerous attacks, with frenzy, amounting to, in some cases, *transitory mania* and the *convulsive drunkenness* of Percy.

Such are, briefly, the peculiarities of drunkenness in individuals already deranged or predisposed to cerebral disorders.

(2) *Predisposition in Delirium Tremens*. — Few drinkers have so simple a history as described elsewhere. (See DELIRIUM TREMENS.) Typical alcoholic

delirium, with its three short periods, is much more complicated, developing on a soil prepared by heredity. We shall see profound modifications taking place which affect each one of the three periods, as well as all of them together. Not only the course of the alcoholic symptoms may vary, but also the subject matter of the delirium itself, so that the classic picture of alcoholism is completely inverted. In this way ever so many abnormal forms of alcoholism are constituted, the analysis of which becomes clear in the light of the knowledge of the soil. Here we shall find again the patient in his real nature, with his pathological acquisitions, and his morbid inheritance, entering the struggle with a poison, the physiological effects of which are constant, but whose pathological reactions vary indefinitely.

In order to understand this more clearly, it is necessary not only to consider the factor "predisposition," but also to dissociate it, to analyse it, and especially to appreciate its degree. A man is the more predisposed to the delirious symptoms of alcoholism, the more his brain is heavily weighted by inheritance, and the rapidity of the appearance of these symptoms follows the same law. *The first group* of drinkers are, accordingly, those in whom, the predisposition being extremely great, a slight excess of alcohol is sufficient to cause all those delirious symptoms. It is in this case certain, that the symptoms of pure alcoholism play only a secondary part, the brain reacting with all its peculiar qualities creates a kind of delirium, the nature of which reminds us of the predisposition. An individual, *e.g.*, who has inherited melancholia, will, in consequence of excess in drink, be attacked by melancholia.

Among this category of drinkers, so eminently susceptible to alcohol, we find individuals, predisposed to an extreme degree, degenerated, weak-minded, in whom an occasional cause, however slight, is able to produce a delirious idea. Alcohol plays in them no other part. *All the varieties of delirium may be observed* with the characters peculiar to the delirium of the degenerated (suddenness of commencement, rapid development and disappearance, &c.); there is, however, no fixed rule; the delirious ideas are of inexhaustible richness, and all sorts of things may be found in them at one and the same time, or successively—ideas of exaltation, persecution, hypochondriac and melancholiac ideas, eroticism, &c.

The question is, what becomes during this time of the symptoms peculiar to intoxication. They are absolutely disguised

by the other phenomena, and consist generally in simple intellectual exaltation, the principal effect of which is to give to the superadded delirious conceptions much more intensity. This exaltation subsides very soon; the delirious ideas continue to develop and to be transformed; they become better or aggravated according to the case, but this lies outside the line of our article.

This *first group* comprises drinkers who, paradoxical as it may seem, are, in spite of their predisposition, not so much exposed to serious alcoholic symptoms, for the double reason that these symptoms appear very soon—causing delirious complications of another kind—and that in the majority of cases sequestration takes place. But the repeated reproduction of similar symptoms causes rapid cerebral ruin; the delirium becomes more and more consistent, and *dementia precox* may be the definite termination. If on account of a lesser intensity of the delirious symptoms, the patients are not sequestered, they have more marked alcoholic symptoms which approach those we have to describe later on; but they rarely produce only alcoholic delirium similar to the typical delirium.

The *second group* of drinkers, diametrically opposite to the former, comprises individuals with an extremely slight predisposition. Alcoholic excesses cause here their peculiar symptoms, developing, however, a little more slowly. We see them occasionally complicated by *superadded delirious ideas*, but very temporarily only. In the former group the predisposition was aggravated by alcohol, and here it complicates alcoholism, and plays a well-marked part. The patients of this group are, by virtue of their greater resistance, slow candidates of delirium tremens, which indeed, may never be developed. They are, moreover, unconsciously subject to chronic alcoholism, but their original incubus makes its influence felt in the much more rapid appearance of final alcoholic dementia, or in the last periods by the appearance of various delirious attacks which are here produced by the same process as in the much predisposed individuals of the former group. The continued excesses have everywhere produced a soil of degeneration, on which the same delirious conceptions will grow as in those with innate degeneration.

Between these two extreme groups it is easy to conceive a whole series of intermediate ones, in which the two factors struggle with more or less equal force. The result of this is a quite new, special clinical picture, a mixture of delirious

ideas, on account of the pre-existing cerebral incubus, and of special symptoms of alcoholism. If the excesses are continued, the symptoms of intoxication gain more and more importance, and begin to partially mask the delirium borrowed from predisposition, and the patients proceed, by steps, towards that delirium tremens which retains its special peculiarities due to this cause.

In drinkers of this category the influence of hereditary predisposition makes itself felt in two ways, either by shortening the prodromic period of alcoholic delirium, or by the outbreak of a certain number of delirious ideas mixed with the delirium, and reminding us of those due to predisposition. These patients become delirious at a less advanced age than the former group. In some years, sometimes in some months, the delirium breaks out after a short period of incubation, characterised by most striking physical symptoms. The period of regress is generally long and more or less disturbed.

In the individuals of this group, who are most predisposed, the prodromic period is mostly short, but after the symptoms of intoxication have made themselves felt, we often see another psychosis arise, continuously developing in accordance with the special symptoms of intoxication, and intimately mixing with them until the day of the outbreak of the delirium tremens. This, still more complicated by strange elements, lasts as a rule for a longer period, and terminates slowly, the slightest cause producing a fresh exacerbation of the morbid phenomena. Besides this we have to note the persistency, for a very variable length of time, of the characteristics of the delirium borrowed from predisposition.

This is the course of the symptoms of alcoholism of predisposed individuals. We shall now return to clinical observation, and see the aspect of the different periods of alcoholic delirium thus modified by new pathological elements.

(1) *Period of Incubation.*—This period, so little remarkable in the ordinary drinker, which seems often to come on rather suddenly during the middle stage of *delirium tremens*, is, on the contrary, very noticeable in a predisposed individual. Its duration may be long—several weeks or months. Its form corresponds to that described by Lasègue under the name of *sub-acute alcoholism*. This form, accordingly, is essentially connected with a morbid predisposition of the drinkers, allowing delirious symptoms to manifest themselves at every excess in drink. We may imagine that in much predisposed

drinkers, or in those who do not go to great excess in drink, alcoholism remains always in this sub-acute phase, justifying the special description given to it. But otherwise this sub-acute phase is only the preparatory one of a more serious acute period, which is nothing else but the course of delirium tremens.

At first, all the elementary symptoms of the period of incubation, as insomnia and fearful nightmares, are of great importance. But what becomes still more characteristic is *the tendency of the patients to interpret their sensory illusions*, and to make them the basis of so many delirious conceptions: "the itching they feel is due to an electric machine; *tinnitus aurium* is a noise outside meant to disturb them; insomnia is produced by some drug, somebody trying to prevent them from sleeping; their expectoration is the sputum of phthisis," and so on.

A patient in sub-acute alcoholism is *very often suffering from persecution mania*, but his ideas of persecution are not steady and not well connected together; they are never systematised. The patient is gloomy, sad and restless. It seems as if the nocturnal tragedies at which he is present continue to impress him during the day, and that he seeks in his surroundings for their explanation. Jealous and timorous, he is afraid of and suspects everybody—his wife, his children, and his masters. Often he believes himself to be the object of the special attention of the police. All sorts of ideas of persecution may be found, and all of them are characterised by great *changeableness*, not being continuous, but *constantly interrupted by lucid periods*, and remarkable for producing on the part of the patient, in consequence of his continual alcoholic excitation, *violent reactions*, out-rages, and even homicide. It is not rare to observe some hallucinations, especially during the night (of hearing and vision), towards the end of this period, but on the whole illusions are predominant. It is characteristic of the derangements of intellect caused by alcohol, that they are of a painful nature, and it is therefore not astonishing if the superadded delirious ideas of the period of incubation are those of depression.

If predisposed individuals do not become deranged, they nevertheless have periods of intellectual excitement; they show themselves loquacious and obscene, but their talk has always a lugubrious character. They like to talk of battles, slaughter, blood. Others give themselves to debauchery, begin to lead a disorderly and expensive life, and refuse to work.

Others are bent only on mischief. In an *epileptic patient* the number of attacks increases. As a degenerated individual has a very lively imagination in his delirium, other ideas may on a given occasion arise besides those of persecution; ambitious and hypochondriacal ideas, &c. But they are always ephemeral and transitory. In short, at this period a drinker is, above all, depressed, jealous and slovenly; he is a troublesome bedfellow, and has ideas of persecution.

After a longer or shorter duration, the delirious troubles increase in consequence of fresh excesses, and become more continuous; conscience becomes completely obscured; hallucinations appear, and the middle stage of delirium establishes itself.

(2) *Middle Stage*.—In the midst of so characteristic and pitiable a picture of delirium tremens, which here completely preserves its clinical autonomy with its four categories of symptoms (frightful, changeable, nocturnal and professional), there appear delirious symptoms of another feature which somewhat modify the form. These are of two kinds: the *melancholy and ambitious*, corresponding to the two forms of drunkenness in predisposed individuals: the *melancholy and maniacal forms*.

Melancholy Type.—There are melancholy symptoms which we must not confuse with the sad mental situations created by alcoholic hallucinations. Ideas of death, imaginary accusations and attempts at suicide, all of which are without any connection, and are constantly interrupted by the intense symptoms of delirium tremens. These superadded phenomena are absolutely ephemeral and last generally only as long as the delirium itself. *These ideas do not properly belong to delirium tremens*, which, as we have seen, is essentially a secondary and hallucinatory delirium, but they are an indication of a special predisposition, as is proved by a detailed analysis of *suicide* in these cases. (1) Instead of having the form of genuine alcoholic suicide (an accidental act, or caused by fright in consequence of special hallucinations), it is logically connected with the melancholy ideas as expressed by the patients. (2) It is not rare to observe those who relapse into delirium tremens attempt suicide at each fresh attack. (3) In the course of one and the same attack of delirium tremens, certain patients make several attempts at suicide, as if the idea of dying had become a fixed idea. (4) Lastly, observation shows that in the ancestors of drinkers who become melancholiacs and commit

suicide during an attack of delirium tremens, a special predisposition to melancholia exists. (Melancholia of ancestors; attacks of melancholia with or without attempts at suicide previous to the alcoholic attack.)

Ambitious Type.—This type is so remarkable that it strikes an observer accustomed to find in delirium tremens an unhappy patient who is a prey to sensory symptoms of a painful nature. This is indeed a peculiarity deserving special mention and interpretation. Suddenly, in the midst of general disorder of ideas and actions, of fright and fear; in the midst of the dreadful scenes which unroll themselves before the eyes of the patient, we see appear a fit of haughtiness and even of exalted ideas. *These fits have generally the duration of a flash of lightning*. The patient, just now full of anguish and fright, becomes suddenly happy and merry; he is emperor or God, he possesses great wealth. Then the painful scenes again take their course, to be interrupted here and there by the sudden appearance of a new ambitious idea, sometimes even by some pleasant hallucinations, and so forth, to the end of the attack. Sometimes, when the delirium is not too intense, we see the ambitious ideas last a little longer, several hours or days, but this is always only a superadded symptom. Whilst having the ambitious ideas the patient remains trembling, agitated, unstable, incoherent, and maniacal.

It is a rule without exception in mental science to consider an ambitious idea as a symptom of intellectual ruin. We refer to this in order to point out the significance of the ambitious form in delirium tremens. *It is a special form in predisposed individuals, either weakened or with insane inheritance*. Old chronic drinkers inclining towards dementia often have ambitious ideas.

(3) *Period of Regress*.—In an individual with a good constitution delirium tremens is a sudden explosion without serious consequences, but that is no longer the case in a person predisposed; it takes a long time before his brain, so violently disordered, regains its equilibrium. The active period of the delirium itself, instead of being of a few days' duration, may last with the same intensity for several weeks; then a sub-acute period follows, marked by profound bluntness of all the faculties, by illusions and hallucinations. The mind becomes clear again very slowly, and at last, after a long period of convalescence, the patient recovers. These are the more fortunate cases. Not unfrequently deli-

rium tremens is followed by a series of mental disturbances which seem to be the continuation of those belonging to the period of incubation which had suddenly been interrupted by the storm of the second period. The cerebral equilibrium has once been disturbed, and it is with the greatest difficulty that mental tranquillity is re-established. The slightest cause is sufficient to renew the delirium.

In other cases we see delirium tremens followed by another psychosis which has progressively established itself after the soil has been well prepared for its growth. This psychosis, varying in its aspects, has a development of its own. These are, instead of delirious disorders, simple hallucinations, often lasting for years, and showing the persistence of erethism of the cortex, and yet permitting complete lucidity. After recovery, the predisposed individual usually recommences his excesses and the symptoms re-appear, at once drawing after them the same consequences. A third, fourth, and fifth time and oftener the same recurs until the progress of chronic alcoholism lands the drinker in an asylum.

Such is the history of alcoholism in individuals predisposed by special heredity to mental derangements. There is still another form of alcoholism in completely degenerated individuals—the impulsive form, dipsomania. (See DIPSOMANIA.)

The question of the relation of heredity to alcoholism is so vast that it would much exceed the space at our command.

Diagnosis of Alcoholism.—The symptoms of poisoning by alcohol are so characteristic that the diagnosis is evident in many cases. Common drunkenness is easily recognised, and with regard to delirium tremens its four principal characters (frightful, nocturnal, changeable, professional), the predominance of the hallucinations of sight, the agitation of the patient, the tremor of the hands, and the absence of fever present a striking *ensemble* of symptoms not easily found in any other disease. The apparent suddenness of the onset, the intellectual excitement, the loquacity and the incoherency in words and ideas might suggest *acute mania*. In mania, however, there is no trace of delirium, properly speaking, not even secondarily, and still less of special predisposition; hallucinations are rare in it, and those of vision are certainly not predominant; lastly, the uniformly sad character of the delirious conceptions will decide the difficulty in favour of alcoholism. Besides, the further development of delirium tremens will confirm the diagnosis,

and again, it subsides much more rapidly than mania.

Certain *hysterical* attacks might, by the suddenness of their onset, by their noisy character and their manifold hallucinations, be for a moment mistaken for delirium tremens. But the presence of hysterical symptoms, especially of hemianæsthesia (including the senses), the absence of tremor, the knowledge of former hysterical fits, the rarity of frightful hallucinations, the fact that they are frequently mixed with pleasant ones, and that the delirious conceptions are not of sensory origin, will prevent our falling into this error.

Vertiginous *epilepsy*, or certain deliriums consequent on epileptic attacks, may closely resemble an attack of delirium tremens. But here the commencement is brutal in the literal sense of the word, and the attack often leaves distinct traces behind. The hallucinations are less numerous; there is no tremor; the incoherence reminds us of mania; the excitement is generally more intense; and the patients have a marked tendency to violent actions, which make them extremely dangerous. These actions are more or less connected with hallucinations, the termination is very sudden, and no trace of the attack remains in the patient's memory.

Certain individuals suffering from *general paralysis*, if they are much excited, resemble patients in delirium tremens on account of the tremor of speech. But here the hesitation in speaking is characteristic; there are no hallucinations; the delusions, although changeable, are not sad: oftener they are ambitious; intellect appears weakened, and memory treacherous. Often the excitement of a paralytic patient is due to recent excesses in drink; diagnosis is then very difficult, and the course of the symptoms alone clears up the diagnosis. The excitement is only ephemeral; when it has disappeared, paralysis presents its usual character.

Chronic alcoholism is much more difficult to diagnose, on account of its manifold symptoms, none of which is pathognomonic.

Our space does not allow of a complete differential diagnosis, but we may point out some possible errors.

In *arsenic poisoning* we sometimes note stiffness, tremor, and motor and sensory paralysis. The seat of the paralysis is preferably in the lower limbs, but it is accompanied by flexion of the joints. Moreover, paraplegia is in alcoholism an exception; paralysed individuals much oftener labour under hemiplegia, or, if

there is paresis only, it is mostly generalised. At this period the intellect also is much weakened. Knowledge of the business habits of the patient will help the diagnosis.

Chronic Saturnism is accompanied by derangement of sensibility and mobility, by tremor and weakening of the intellect. But anæsthesia is not ascending; it is disseminated, and generally restricted to the outer parts of the limbs. Paralysis affects the extensors, especially of the fore-arm, and is accompanied by muscular atrophy, with loss of electric contractility. Tremor is very slow. Lastly, the profession of the patient, a bluish line round the gums, cachexy and the occurrence of saturnine colic in the past will determine the diagnosis.

In poisoning by *mercury*, the itching, tremor, and weakness of the limbs resemble alcoholism, but here the itching is general, the tremor is not regular; there is no alteration of sensibility, and the muscular weakness does not resemble the paretic symptoms of the drinker. There is no delirium, there are no hallucinations, and no weakening of intellect; it is connected with special occupations, and we often find in the past a trace of mercurial stomatitis.

The most difficult differential diagnosis is that of chronic alcoholism from general paralysis. Some old drinkers have a hesitation of speech, tremor, inequality of pupils, and advanced weakness of intellect. But they have besides, motor and sensory derangements, which patients suffering from general paralysis do not present (hemiparesis, hemiplegia, anæsthesia of the lower limbs). The derangements of speech are permanent, and due to more or less complete glossoplegia; in general paralysis, speech is drawn out and scanned; and the articulation of some words only is difficult. Alcoholic dementia is generally partial, and affects a certain number of faculties, whilst in general paralysis it is total, the intellectual ruin is complete. Lastly, the history of the case, age of the patient, and course of the disorder, are important aids to diagnosis.

Other common intoxications present symptoms similar to those of alcoholism, *e.g.*, those of coffee and tobacco, in which we observe tremor, vertigo, &c. But the resemblance is very remote, and the difficulty is cleared up by questioning the patient.

Morphia and *Cocaine* produce, like all poisons of the nervous system, very intense hallucinatory delirium, reminding us of delirium tremens; generally, however, the habits of the patient are known, and, moreover, the delirium is far less

intense than in delirium tremens, while the consciousness of his condition is scarcely altered. The hallucinations are not frightful; special tremor is wanting, and the derangements of general sensibility are much accentuated—*e.g.*, aching, pricking, sense of oppression, and divers pseudæsthesiæ. The general state is bad (anæmia, cachexia), and there are traces of abscess on the skin; lastly, the temporary use of the poison re-establishes cerebral equilibrium. These delirious states are, indeed, generally brought about by deprivation of the habitual stimulant.

The Abnormal Forms of Alcoholism are recognised by the presence of mental and nervous symptoms which do not exist in the ordinary clinical picture of alcoholism. We shall find their explanation in the pathological past of the patient, and especially in the history of his hereditary antecedents. This rule has no exceptions; to make a precise diagnosis for the purpose of prognosis and treatment, we must not limit ourselves to a moment's examination of the patient; we must follow him in his development, and try to recognise his particular conditions—in one word, we must, in our thoughts, live through his life. Under this condition only are we able to explain and to value his more or less strange attitudes and his abnormal actions. If we witness an attack of frenzy during drunkenness, if this drunkenness becomes complicated with convulsions, if a proved drinker becomes ambitious during delirium tremens, if it takes three months to cure him, &c., the physician, with a perfect knowledge of the past of the patient, will not wander in interminable hypothetical conceptions about the nature of the affection he observes; he will be able to separate the poisoning from predisposition, and to recognise the combined action of both.

Our study on diagnosis is necessarily incomplete. We should have to take again in detail all the symptoms of alcoholism, and to criticise them; but that would lead us too far. In reality in practice the possible mistakes are few, the principal ones of which we have spoken about.

Prophylaxis of Alcoholism.—We must now confine ourselves to a few considerations on the Prophylaxis of Alcoholism.

Alcoholism—a social disease—has gradually gained the rights of domicile among all nations and has done evil, which now demands the attention of hygienists and of legislators. The means proposed to prevent further progress of the evil are numerous.

First, it has been proposed to *suppress drunkenness by prohibition*, but this law has resulted in encouraging the drinker to conceal his vice; and the success is very problematical.

Certain countries have founded *special asylums* where drinkers undergo methodical treatment. This means has been to some extent efficacious, but unfortunately its range is very limited. Besides, an asylum for drunkards cares only for the patient himself and does not restrain drunkenness in general. It would be necessary that sequestration in these places had a repressive character sanctioned by law.

Lastly, *temperance societies* have made very active propaganda in favour of sobriety. The benefits of these societies are innumerable. They moralise the drunkard, appeal to his self-love, instruct him as to the dangers of alcoholism, encourage him, and under certain circumstances place at his disposition natural, non-adulterated alcoholic drinks. But this remedy moralises and cures only those who want to be moralised, but has no effect on the masses who are indifferent to the injury they are doing themselves. Meanwhile, alcoholism does mischief always with the same intensity, and constitutes an increasing social peril, in consequence of the transference of alcoholic debauchery from the parents to the children, and thence to the whole race.

Seeing that it is a social danger, we should see society without regret defending and protecting itself by measures restricting the liberty of the citizens with regard to alcoholic excesses. Society's carelessness simply means its ultimate ruin.

In reality the only practical means to limit alcoholism is to *diminish to the greatest possible extent the consumption of alcohol* and to *make the latter innocuous by making adulteration illegal*, and giving the consumer a rectified alcohol, the chemical formula of which approaches that of alcohol of wine.

But to attain this result it would be in vain to appeal to the goodwill of the consumer himself, *he must be constrained not to become intoxicated*. One would have to struggle against acquired habits and against a morally defective condition which it is almost impossible to redress. It would be difficult to prevent the workman from going to the public house on pay-day, and commercial people from making a bargain glass in hand. It is necessary that governments take the first step to employ severe measures, which, although restraining the liberty of the subject, find

a justification for it in the interests of public health and the prosperity of the country.

One of the measures proposed in France which seems likely to give good results, is the *suppression of private stills and the manufacture of monopolised alcohol* by the State (system of M. Alglave). This system would avoid the inconvenience of spreading broadcast in commerce alcohol of bad quality, manufactured, with large profits, from all sorts of substances to meet the requirements of the poor. It would also make it possible to give out for consumption beverages only reduced to a minimum of toxicity (for alcohol although rectified will always be a poison for the human system, when taken in excess).

Another system which we should be glad to see proposed, would consist in *imposing a considerable tax on alcohol*, so that it becomes a *liqueur de luxe* on account of its extreme workmen inaccessible to the poor, for the workmen form the greatest part of the army of drinkers. This system would be a great help to the former, and their combination would, we think, give the best results.

On the other hand it would be desirable that the *laws tending to suppress drunkenness* should be better applied; that certain laws should *forbid the sale of alcoholic drinks* in other places than those destined for it, and which have to submit to a rigorous surveillance; the number of public-houses should be made proportionate to the number of the population; lastly, most severe punishment should be imposed on adulteration of alcoholic beverages.

All the States should undertake the foundation of special asylums for drunkards, where incorrigible drunkards and those who make themselves guilty of crimes should be imprisoned for a certain time by law. It would be with these patients as with insane criminals, whom public opinion demands shall be imprisoned in special asylums, where they shall be under legal restraint, but under a *régime* and treatment in accordance with their morbid condition.

At the same time *the development of public instruction, the amelioration of the lot of the workmen, and the improvement of hygiene* with regard to nutrition, would be an excellent help for the proposed remedies. Certainly the citizen instructed about the dangers of alcohol and the real needs of his body, his mind elevated in school or college to the disgust of drunkenness or debauchery, the effects of which have been described to him, would be better armed

against the temptation. If he nevertheless succumbs, it would be in consequence of a defective disposition or of a morbid impulse; he would be a patient against whom society would have more right than ever to protect itself. Lastly, the State should cease to be unconsciously an accomplice of evil, by forbidding the consumption of alcohol to those who stand directly under its authority, by suppressing the sale of drink in the barracks and the official distribution of spirits to the soldiers, either as general *régime* or under exceptional circumstances of military life.

Everything ought to be done to extinguish the social plague of alcoholism. The reader will excuse us on account of the importance of a question in which everybody nowadays ought to take an interest, for having expressed our views on the prophylaxis of alcoholism. They belong more to sociology than to medicine, strictly speaking, but this intrusion on the territory of sociology will be forgiven, if it is considered that *there is no better medicine than prophylaxis*. Medicines cure fewer patients than hygiene and wise precaution.

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ALCOHOLISM, ACUTE. (See DELIRIUM TREMENS.)

ALCOHOLISM, CHRONIC.—Alcohol taken in small quantity and with long intervals produces well-marked physiological effects. Although of no use to the animal organism, except in pathological cases when used as therapeutic, we cannot say that it produces in this case intoxication strictly speaking. Chronic alcoholism is only the consequence of an often repeated ingestion of spirits in sufficient quantity to annihilate the effects of individual reaction—the physiological equilibrium. It comes like a thief, slowly and insidiously. It follows from this that alcoholisation is chronic poisoning. Acute poisoning is constituted by drunkenness, the residues of which are of no importance if the drunkenness itself is not often repeated; but this poisoning becomes an epiphenomenon, an acute syndrome in the course of chronic intoxication in individuals who take continuously to drink.

What then are the morbid phenomena of the nervous system to which habitual drinkers are subject? These symptoms extend over an indefinite number of years, depending on the resistance of the individual and the quantity of alcohol absorbed.

Alcohol acts preferentially on the brain, but with regard to drinkers with cerebrospinal symptoms, we have to take into account a kind of idiosyncrasy, in conse-

quence of which the poison localises its effects in the region of least resistance. Certain inveterate drinkers will only show insignificant nervous symptoms, whilst the liver and kidneys are almost exclusively affected. Idiosyncrasy and hereditary predisposition are two factors, the value of which must not be forgotten in the interpretation of observed facts.

However this may be, the severe symptoms of chronic alcoholism often manifest themselves only after the acute and conspicuous symptoms of drunkenness and of alcoholic delirium.

For a long time the habitual drinker does not show any persistent symptoms connected with the nervous system. The symptoms first observed are due to the immediate action of the alcohol, to more or less copious drinks, fatigue of the brain, diminished acuteness of the intellect, a little muscular weakness and insomnia, complicated with digestive derangements, anorexia, morning sickness, hepatic congestion, &c., which symptoms, however, subside till the next drinking fit. But as these latter are repeated, the saturation becomes more complete and the resistance decreases in proportion; the symptoms enumerated before become permanent, and even more severe ones may be observed. We divide them with Lancereaux, from whom we have derived much help, into derangements of *sensibility, motility, and intellect*.

One general law may be followed from clinical observation. The derangements observed *proceed chronologically from the periphery to the centre; they appear first at the extremities either as sensory or as motor derangements*.

Sensory disorders generally appear first. It is their characteristic *to be excited by changes of temperature, to be symmetrical and to have their seat at the extremities of the limbs*. They consist in *perversion, exaggeration or diminution* of general and special sensibility.

In regard to the skin there are false sensations, pricking and itching, which the patient compares to the sensation produced by thousands of ants creeping over the skin (formication). These false sensations, exaggerated like all alcoholic pseudæsthesiæ during the night and by the warmth of the bed, affect chiefly the lower limbs. They are very troublesome, last a long time, and are apt to cause insomnia. They are precursors of more serious symptoms, and indicate that material lesions are commencing in the nervous centres as well as in the nervous divisions of the periphery, which, however, are often only the consequence of con-

comitant vascular lesions. These symptoms are anæsthesia and hyperæsthesia (anæsthetic and hyperæsthetic forms of alcoholism of Magnus Huss).

The *exaggeration* of the sensibility is more a *painful hyperæsthesia* (hyperalgesia) than a derangement of tactile sensibility. Its seat is generally in the lower extremities, sometimes in the abdomen and in the loins, and it is greatest at the nerve ends. If it is spontaneous it consists in a sense of burning and in shooting pains. It has generally an external cause; the slightest touch or friction of the skin will produce painful uneasiness. Pressure of the muscles sometimes causes pain. The patient has also a sense of heat or cold in the deeper layers of the limbs, as if in the muscles and bones.

Analgesia, much more frequent than hyperæsthesia, appears in all cases much more slowly. It is nearly always contemporaneous with central lesions, especially of the vascular sphere; it follows, therefore, the development of the atheromatous processes, with which it appears to have a causal relation.

At first temporary, it soon becomes permanent, and in its development pursues an almost constant and very characteristic course. Always bilateral and symmetrical, the sensory phenomena commence in the feet, more especially in the great toes, pass on to the dorsal and plantar surface and thence to the leg. The same symptoms appear simultaneously in the fingers, the hand and the arm.

Anæsthesia of the upper limbs follows mostly that of the lower. This, however, is not an absolute rule. Anæsthesia may be observed in other places, its course may be irregular, and it even may be unilateral (hemi-anæsthesia of Magnan).

This anæsthesia is rarely complete; it affects the whole sensory system, and consists mainly in progressive diminution of feeling, which may be more marked on the right than the left side, and *vice versa*. It reveals itself in a diminution of sensibility to pain, and by delayed and imperfect tactile perceptions. This diminution of acuteness makes the patient unfit for his profession. The corresponding motor functions are impeded.

According to some (Lancereaux) this anæsthesia is a disorder caused by alcohol, according to others (Magnan) it is a symptom secondary to definite organic lesions. It is certain that alcohol alone is able to produce relative anæsthesia, as we see in drunkenness and in delirium tremens, but this toxic anæsthesia is generally temporary; in the course of chronic intoxication the derangements of sensi-

bility are lasting. Even their localisation and their persistence in the same places favour the hypothesis of Magnan. Why, indeed, should these disorders not be general, if connected with the specific action of the poison? And why is their localisation almost systematic?

The sensory derangements are of the special senses, especially sight. Illusions of this sense are frequent (photopsy, *muscæ volitantes*, objects in different colours, which seem to move, mists, &c.). The sense of colour is, according to Galezowski, constantly altered; it may be altered unilaterally (Magnan). Acuteness of vision is also weakened; the use of the eyes becomes fatiguing, and the objects become confused (alcoholic amblyopia). The pupils are generally dilated, and do not react well on exposure to light. As regards the sense of hearing, the illusions (noise, whistling, &c.) develop in proportion to the diminution of auditory acuteness.

Authors agree in acknowledging that the disorders of the other senses are not very remarkable; the acuteness of the senses diminishes progressively, but this diminution is, above all, due to lessened mental activity.

Motor Derangements. — Together with the sensory disorders the motor derangements have to be reckoned among the most important and most characteristic symptoms of chronic alcoholism. Obeying the general law (from the periphery to the centre) in their order of appearance, they follow in their progress the order of severity. Commencing with simple *paresis*, they develop into *tremulation*, *tremor*, *spasms*, and *cramps*; later on into *contractures* and *convulsions*, and finally terminate in *paralysis*.

The motor disorders appear early, sometimes before the sensory symptoms; they always become more and more aggravated during the whole existence of a chronic drinker. Then, existing together with the sensory and mental derangements they form the symptomatic tripod of chronic alcoholism. These motor derangements are not exactly the same in all patients; we have to reckon here with the idiosyncrasy of the individual. Some symptoms as, *e.g.*, paralysis (*paralytic form* of Magnus Huss), are inconstant, at least at the commencement, for, later on, having become a symptom of circumscribed cerebral lesions it is almost the rule. In the paralytic form we observe above all *paresis*, a kind of general functional weakness of all the muscles, a progressive weakness which, however, does not generally terminate in absolute paralysis. In certain

cases we find a *complete paraplegia* (*paraplégie douloureuse* of Lancereaux); but in this case it is probable that the paralysis is organic, and due to a more or less indelible lesion of the spinal cord.

The most frequent and truly pathognomonic symptom is *tremor*. It generally appears early, especially in nervous individuals. We even observe it after drunkenness, but it soon disappears. If the excesses are continued for some time, the tremor becomes permanent. At first it is only a slight tremulation limited to the hands, a kind of vertical vibration especially noticeable in the morning. Later on the tremulation becomes a distinct tremor, and is observed also during the day. It consists of regular and rapid oscillations, the amplitude of which increases with the progress of poisoning. They become exaggerated if voluntary movements are attempted. At first only appreciable if we look for it, the tremor soon becomes obvious, and develops into functional derangements, into complete inco-ordination of the movements, which are no longer precise and often purposeless. At first limited to the hands, it begins to extend methodically over the arms, then over the feet and legs (the patient reels and walks with difficulty), and at the same time over the lips, the tongue, the muscles of the face and the head.

Peeters draws attention to the tremor of the *elevator alae nasi* and of the upper lip to facilitate the diagnosis. Characteristic derangements of speech are the consequence of this general vibration of the muscles of the tongue and of the facial muscles. The articulation of the words is *tremulous* and stammering, and this alteration affects the whole verbal expression; it is not slow and long drawn; the derangement is not limited to certain words with difficult articulation as in general paralysis; *there is uneasiness and embarrassment but not ataxy*.

The rapidly intermittent muscular oscillations, which constitute the tremor, are contractions limited to the muscular fibres, vermicular undulations not affecting the whole of the muscle as in severe cases of delirium tremens. They are not painful, and the patient therefore does not perceive them, so long as they are slight. But the muscular excitability sometimes shows itself by more lasting and extremely painful contractions of the whole of certain muscles (*cramps*); they are especially noticeable in the lower limbs, in the calves of the legs, and occur preferably by night in consequence of a sudden and forced movement, or as the result of emotion.

Contracture also is sometimes, however, exceptionally observed.

The last motor derangements we have here to point out, are *convulsions*, *epileptiform* and *paralytic attacks*. These three belong to the last period of chronic alcoholism and depend on the definite establishment of organic lesions. Proportionate to the progress of intoxication the vascular lesions have become more considerable, and cerebral atheroma with its consequences has established itself. The symptoms are then directly connected with an organic cause and naturally vary according to its seat. The drinker presents the clinical picture of a patient with circumscribed lesion, and he is liable to cerebral softening and hæmorrhage; but the vascular lesion has not only as consequences necrobiosis of the cerebral substance or sanguineous apoplexy, but extending to the ramifications of the smallest arteries, it is in certain points the cause of that perivascular sclerotic lesion found in the diffuse state of general paralysis. This process of chronic irritation produces again special symptoms. Consequently the patient may have convulsive onsets (epileptiform, choreiform), apoplectiform attacks or paralytic symptoms (hemi-anæsthesia, hemiplegia, various monoplegiæ), the existence of which is connected with foci of apoplexy or of softening. These are, strictly speaking, no longer motor derangements in alcoholism, but are caused by organic lesions consequent on alcoholism. Contrary to the motor disorders of the commencement of the disease, the extension of which from the periphery to the centre of the body was characteristic, the symptoms of the last stage of alcoholism are mostly unilateral.

Independently of the paralytic phenomena which we have described, there are in chronic drinkers still more special symptoms, special in so far as they indicate complete atheroma of the brain, and as alcoholism is the principal cause of this atheroma. This is paralysis *en masse* of the whole muscular system in consequence of the progressive disappearance of the excito-motor power of the nervous centres and also of the decline of nutrition in the muscles themselves. This paralysis, or better, general and progressive paresis, makes the patient more and more inactive and unfit for exertion. His movements are tremulous and become weaker and weaker and inco-ordinate; the gait becomes tottering, and at last it is impossible for him to walk; the movements of the upper limbs become uncertain, and the muscles are flaccid, atonic, and finally become relaxed. The sphincters also lose their

tonicity, and complete helplessness finishes the picture. At the same time the symptoms of psychical weakness have become aggravated and death will soon terminate the existence of a being gradually reduced to a merely vegetable state.

Such are the motor derangements of chronic alcoholism. In speaking of convulsions we have not yet mentioned those called *alcoholic epilepsy*. This epilepsy (the nature of which is undetermined) is in all cases only an acute epiphenomenon complicating chronic alcoholism, which will be mentioned elsewhere.

Intellectual Disorders. — The derangements of intellect caused by the prolonged abuse of alcohol occur, with the exception of the delirious phenomena which occasionally appear in certain patients, in *two definite phases*: the first more especially connected with the direct action of the poison on the brain, the second connected with organic lesions in that organ. The second, characterised by progressive weakening of the faculties and by a special dementia, belongs particularly to the chronic and final period of alcoholism. There is no marked limit between the two periods; the second appears when the cortical elements enter the retrogressive phase, consequently the lesions causing this necrobiosis establish themselves insensibly. The respective *duration* of these two periods is very variable, according to the degree of the resistance of the individual, and to the quantity of the excess. Some patients never reach the second period; in others the weakening is only slight, and does not terminate in actual dementia; in others again the cerebral decrepitude occurs like that of the body, very early. On the whole, we may say that chronic drinkers are the victims of a premature senility of mind and body.

First Period.—It is impossible to describe a uniform type of a chronic drinker in the often long period leading to the threshold of dementia. The more or less considerable number of excesses, their longer or shorter continuation, the more or less variable quality of the liquors absorbed, the general mental state of the individual, his power of resistance, his profession, his social standing, his intellectual culture, the degree of his morality, the more or less frequent occurrence of acute complications, as drunkenness and delirium tremens, intercurrent complications of other kinds, &c., are so many factors profoundly modifying the form and the course of the affection, which are as manifold and varied as the drinkers themselves. We even may say that the

features generally representing or describing the chronic drinker, have in the greater number of cases more reference to the special mental state which predisposes these individuals to drink. However this may be, there are a certain number of general characteristics of chronic alcoholism.

The habitual use of alcohol causes a kind of *perpetual excitement of the nervous centres* which are in a state of continuous erethism. This excitation is shown to the outside world by a great irritability; the drinker is easily offended, easily frightened, and suspicious; he likes to seek a quarrel; he is aggressive and impetuous, and his bad character contributes still more than his debauchery to his isolation in society. Outbreaks of anger are frequent and violent, but without sufficient motive.

One of the most commonly observed alterations has regard to the *moral sense*. At the beginning the drinker, conscious of his lamentable passion, but insufficiently armed to struggle against it, feels a certain shame on account of his degradation; but the conscience soon becomes blunted, and with it the moral sense. Rude, cynical, obscene and untidy, he has only one purpose in life, to satisfy by any means in his power his desire, and he gives himself without shame to the most intemperate debauchery. Living as an egotist, seeking only the company of his equals, careless and indifferent, he becomes lazy, keeps away from his family; his affections have disappeared. His actions show bluntness of the moral sense; judging everything wrongly, and interpreting good and evil according to his own standpoint, he becomes indecent, uncivil, and sometimes is led to commit dishonest actions, bringing him into collision with the law. Some, having become libidinous, will insult public decency. It is a very common thing that if they are no longer able to indulge in debauchery, they have to be maintained by their family. Completely demoralised, and, therefore, having no remorse, they become more and more degraded, until their mental faculties are completely ruined. Gradually less resistant, we see them living an intemperate life in the public houses in a state of semi-perpetual intoxication.

The mental faculties, before being weakened, are notably altered. Intellectual keenness diminishes, judgment is falsified, imagination is perverted, and memory becomes slow. These faculties, awakened by a fresh excess for a moment to shine in their former brightness, become a little more darkened afterwards,

and so gradually degenerate. If the individual in this condition undergoes treatment, or if the poison is taken away from him, it is not unusual to see that the former mental state returns, and that the moral sense resumes its equilibrium, a proof that the weakening of the faculties is only apparent, that it is the consequence of the intoxication and not yet a symptom of dementia.

The rapid form which we have just described is that of severe cases only, where a doubtful mental stability in the patient pre-exists. But there are cases not so well-marked in which the decay is less. Between that form in which the inveterate drinker, in consequence of professional habits (army, navy, fatiguing professions, &c.), or in consequence of defective hygiene, marches step by step, without leaps, towards premature weakening of the faculties, and the case which we have described, there exist a great many intermediary cases, which cannot be methodically described. What we may say in general is, that the two characters which distinguish them are uniformly: *more or less marked deadening of the mental faculties, and more or less complete extinction of the moral sense.*

This is the period preparatory to actual dementia, sometimes described under the name of *alcoholic dementia*, but incorrectly, for true dementia is not yet apparent.

Second Period.—The second period is the expression of incurable circumscribed or diffuse cerebral lesions, and is no longer, as regards symptoms, different from common organic dementia. It is characterised by a progressive disorganisation and by the disappearance of the faculties. This disappearance is rarely absolute, but is only partial, and affects a certain number of previous qualities of the individual, herein differing from total general dementia, which is a characteristic of general paralysis.

The brutishness of the chronic drinker, the apparent ruin of all his faculties, his incessant stammering, his tremor, and the motor derangements he presents, cause him to resemble clinically the general paralytic, with whom he is sometimes confused; this condition even has received the name of *general alcoholic pseudo-paralysis*. But we must not mistake this. It is incontestible, since Magnan wrote, that a drunkard may become actually paralytic, and that alcoholism is one of the factors of general paralysis; but the cases of pseudo-paralysis, as described by some authors, have nothing in common with general paralysis, the lesions of which are quite different.

Alcoholic dementia develops as every other organic dementia. We have mentioned above the complications which may occur in the sphere of the motor functions. We might attribute to this dementia two special characters: its precocity and its rapid termination in death. The intoxication by alcohol affects equally all regions of the human economy; there is not one part which does not become particularly susceptible to the influence of even the smallest causes, a circumstance which makes the prognosis very bad.

Treatment.—It is scarcely possible to give definite indications for the treatment of this form, which varies in its symptoms so much in the different patients. One indication, however, is important, which it almost seems a platitude to give here—absolute abstinence from alcoholic beverages, with the exception of diluted wine and stimulating drinks containing very little alcohol (weak beer, cider). The milk *régime* gives excellent results. It is well to raise the tonicity of the nervous system by the long-continued use of tonics: hydro-pathy, use of iron, and nitrogenous food. The manifold symptoms of chronic alcoholism which are not directly caused by the use of alcohol, but by the lesions acquired under the influence of the poison (gastritis, motor and sensory paralysis, &c.) require therapeutics according to the special complication.

More than ever the question of radical sequestration of inveterate drinkers forces itself upon us. We believe that the only and safe means to put a stop to the serious accidents caused by the long-continued use of alcohol, consists in the sequestration of the patients in special establishments. It will be useless for the medical man to struggle against a drunkard who enjoys his freedom. Social, anthropological, and humanitarian considerations plead for the suppression of a freedom which is abused, and we ask definitely that for the treatment of habitual drunkards there shall be established inebriate asylums.

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ALCOHOLOPHILIA (Arab. *al*, the ; *kohol*, anything finely disintegrated or purified, e.g., by distillation ; *φιλέω*, I love). An overpowering desire for intoxicating liquids. The mental habit which grows out of the abuse of alcohol. (See ALCOHOLISM.)

ALDEHYDE. (See PARALDEHYDE ; SEDATIVES.)

ALECTOR (*ἀλέκτωρ*, a cock). A term applied to one who is unable to sleep.

ALEXIA (*ἀ*, neg. ; *λέξις*, a word. The loss of power of understanding written or printed words, not merely the loss of power of reading aloud. Disease limited to the motor speech region sometimes abolishes the power of reading, sometimes it does not. The difference depends in part on the degree to which motor speech processes are concerned in the comprehension of visual speech symbols. In persons accustomed to reading, the intellectual images may, perhaps, be aroused directly by the visual processes without the intervention of the motor processes. In those who are imperfectly educated the motor processes are essential—hence alexia would most frequently be observed in those whose degree of education and whose practice in reading have been limited (Gowers). (See WORD-BLINDNESS, MIND-BLINDNESS.)

ALGESIA (*ἀλγησις*, a sense of pain). A synonym of Hyperæsthesia (*q.v.*) (See HYSTERIA.)

ALIENATIO MENTIS (*alieno*, I withdraw or make over to another ; *mens*, the mind). A synonym of insanity.

ALIENATION (*alieno*). A generic term including the various forms of insanity.

ALIENIST (*alieno*). A physician who devotes himself specially to insanity.

ALIENUS (*alieno*). Delirious ; maniacal.

ALIMENTATION. (See FEEDING, FORCIBLE.)

ALLOLALIA (*ἄλλος*, other ; *λαλία*, talk. Any unusual or abnormal state of speech or utterance. (Fr. *allogalie*).

ALLOPHASIS (*ἄλλος*, other ; *φάσις*, a speaking, from *φημί*, I speak). An old term for delirium or incoherent speech.

ALLOTRIOGEUSIA and **ALLOTRIOGEUSTIA** (*ἄλλοτριος*, strange, of another sort ; *γεῦσις*, taste). Perversion of the sense of taste, either from central lesion, some local affection, or a purely functional phenomenon. A symptom occurring in hysteria, melancholia, and some forms of mania. (Fr. *allogotrieusie* ; Ger. *Geschmackstauschung*.)

ALLOTRIOPHAGIA (*ἄλλοτριος*, strange ; *φαγεῖν*, to eat). A term for depraved appetite, or a desire to eat what is unsuitable or improper for food ; a morbid desire for unnatural things, such as occurs in certain forms of insanity, hysteria, and pregnancy. Vogel has given this name to the disease called Pica. (Fr. *allogotriophagie* ; Ger. *Krankhafte Esslust*).

ALLUCINATION (*hallucinator*, I wander in my mind). A variety of the more common form of spelling hallucination.

ALOGIA (*ἀ*, neg. ; *λόγος*, a discourse). Defect of speech from intellectual deficiency. (See IDIOCY.)

ALOGUS (*ἄλογος*, without speech). Unreasonable, irrational. (Ger. *Unvernünftig*.)

ALOPECIA ACCIDENTALIS (*ἀλώπηξ*, a fox ; *accidentalis*). Baldness arising from definite local disease or affections, sometimes observed during mental distress or overwork.

ALOPECIA NEUROTICA (*ἀλώπηξ* ; *neuroticus*, nervous). Baldness depending upon conditions of local nerve disturbance, or of central nervous disorders, or upon mental distress.

ALTERNATION OF NEUROSES.—It is well to premise by calling attention to the fact that nervous disorders are frequently relieved by acute bodily disease, so that persons suffering from insanity may be temporarily or even permanently cured by the occurrence of some acute bodily ailment, and we will state briefly the nature of the acute diseases which in our experience have been associated with such relief.

Either they are painful, such as inflammations of skin, or they are associated with fever and increased temperature and bodily change. We have seen acute mania

pass off on two occasions after severe attacks of toothache, associated with abscess forming at the base of a tooth stump. We have seen the like result follow severe inflammation of the hand due to self-inflicted injuries, and also though counter-irritation, as produced by blisters and setons, has had very little beneficial effect, yet the ordinary development of a carbuncle has been followed by mental recovery or complete remission in the symptoms. The same holds good of large subcutaneous cellular abscesses. We have seen general paralysis of the insane arrested for several years by the development in one case of a large carbuncle, and in the other by the formation of several very large abscesses. Erysipelas, and, we believe, more particularly erysipelas of the head, may be followed by marked improvement in mental disorder. Fevers, inflammations of the lung, consumption, and the like, may also be associated with cure or relief of mental disorder. In the above condition it is well to remember that the relief or cure seems to be in some way related to the stage of the mental disorder; thus, an attack of erysipelas or fever, of toothache or of carbuncle, occurring within a few weeks of the onset of acute mental disorder, though it might temporarily mask or relieve the symptom, yet would almost certainly be followed by a recurrence of the mental disorder as soon as the bodily one had passed off. If, on the other hand, these bodily ailments occurred in a patient who had passed through the earliest stages of the mental disorder, there would be great prospect of not only relief but cure following. In cases where the insanity had become chronic, though marked temporary relief might result, yet on recovery from acute bodily disorder, the mind would return to its old state. We have seen one case of chronic weak-mindedness in which for a time apparent return to reason was associated with erysipelas of the head, and in another case delusional insanity seemed to have been cured by an attack of pneumonia, but in both cases the relief was only temporary.

Next we have to consider the alternation between nervous disorders which are nearly allied, and we will begin by pointing out that these alternations occur between hysteria, epilepsy, headache, asthma, chronic bronchitis, rheumatic fever, gout, eczema, diabetes, and insanity.

First. **Alternation may occur between Hysteria and Insanity.**—A woman belonging to a very nervous stock suffered from hysterical paraplegia, and for years was nursed with care and devotion

by her friends. Suddenly, without any special emotional or bodily cause, she began to talk violently, and at once recovered the use of her legs and more than the normal use of her tongue. She became so excited that she had to be sent to an asylum, where for three months she was maniacal and destructive. At the end of this time she became depressed, and the power in her lower extremities failed, and by the time she was mentally well, she was again paraplegic. In her case a recurrence of mania was associated with a regaining of her locomotive power. In another case, hysteria, as exhibited by a double talipes equino-varus, passed off when the patient became maniacal. In some cases true anorexia nervosa, associated with refusal of food, vomiting, and emaciation, may pass off with the onset of more marked mental disorder; thus we have met with several cases in which there was supposed to be ulceration of the stomach, but which afterwards proved to be cases of hysterical vomiting, and which, on becoming insane, lost all their gastric troubles. It is noteworthy here that it is not uncommon to meet with dyspepsia of a very severe kind in connection with melancholia, and that, in some of these cases, if the melancholia passes into mania, all dyspepsia is lost; and again, we have met with several patients who, while mentally healthy, were extremely dyspeptic, but when mentally disordered were able to eat and digest everything. The relationship which we have been pointing out as existing between the two disorders is interesting, because one has so frequently met with the two disorders occurring parallel, as it were, grave hysteria occurring in one member of the family and insanity in the other; we have known two sisters affected in one instance, and in another twins were thus disordered, one being maniacal, the other markedly hysterical.

Alternation between Epilepsy and Insanity.—There is frequently met with a family relationship, so that epilepsy may occur in one member of the family, while insanity is present in another.

The same patient may be epileptic for a time, then may cease to have fits and become insane; or a patient may, with the onset of epileptic fits, be altered, or even, in some rare cases, improved in mind. We have met with two women who, while suffering from melancholia, had severe epileptic fits, and then began to improve in mind, while in one young patient, apparently of weak mind, there was a rapid improvement after the onset of fits, which lasted off and on for several years.

(For other epileptic relations, see EPILEPSY.)

Megrim and Insanity.—It is noteworthy that complaints of headache are rare among the inhabitants of an asylum. Before the onset of certain forms of mental disorder, headache is often complained of. "Strange feelings" in the head, "weariness," "fulness," "congestion," are terms which are much more frequently met with among the insane than headache, yet megrim is undoubtedly a neurosis, occurring in families in which other forms of nervous instability are met with, and it is noteworthy that in some of these cases insanity develops, and that almost invariably with the onset of insanity the tendency to the recurrence of the headache ceases. In most of these cases the association has been met with in men. A young middle-aged man who periodically was reduced to complete powerlessness from the severity of his headaches, became restless and excited, and later maniacal. In this state he remained for several months, at the end of which time he became quiet, and was able to give a full account of his experiences. He then told us that he was subject to nerve-storm headaches, but that during the past three or four months none had occurred. From this we inferred that, as the headaches had not yet returned, his old nervous balance was not re-adjusted, and that therefore he could not be considered as recovered. This proved to be correct, for a relapse took place, which was followed by a second period of quiet, during which the headache returned, and we felt justified in discharging him recovered. In another case, that of an elderly gouty man, the onset of active melancholia with suicidal tendencies was associated with loss of periodical headaches, and his recovery was timed in relation to the recurrence of these nerve-storms. In a third case, a lady of forty who had suffered from a nervous shock became intensely suicidal, and for a time, though she improved, still did not regain her old feelings and her old mental balance, but headaches to which she had been subject again returning, the balance seemed to be finally re-adjusted.

Asthma, Hay Asthma and Chronic Bronchitis.*—We have grouped these conditions together because though there is a great difference between ordinary chronic bronchitis and ordinary asthma, yet there are certain cases of chronic bronchitis so-called, which, by their periodicity and by their chronicity, appear to have a distinct relationship to nervous disorder, and

in confirmation of this we would say that just as certain cases of asthma alternate with other neuroses, so these cases of chronic bronchitis also alternate with the neuroses. Asthma, whether occurring in gouty or other patients may be distinctly found to alternate with insanity; as a rule the insanity with which it alternates is of a melancholic type. Nearly all my cases have occurred among women, the following being a good example. A single lady of forty who had been a martyr to asthma from the time of her twenty-first year, was so completely unable to help herself that she had to apply for admission to a hospital for incurables, to which she obtained admission. For some years she continued to suffer from frequently recurring attacks of asthma, till without any definite cause she became changed in disposition and habit, and one morning instead of an attack of asthma she had an attack of hysterics. She screamed and disturbed the neighbours. From this time her self-control was gone. She became mischievous and troublesome, but withal possessed by the idea that she was being injured by those about her. In this state she was admitted into Bethlem, where she remained for some time quite free from asthma but full of delusions and suspicions. Early one morning, we were roused to find her apparently dying of asphyxia. She was blue in the face and struggling for breath. We were alarmed, and, having forgotten the history of asthma, were misled. However, some diffusible stimulants and warmth soon dissipated the alarming symptoms, and the patient was found to be perfectly sane. For the rest of her stay in Bethlem she was sane but asthmatic. This is but one example from many in which a parallel series of observations were made. With the loss of the asthma the other mental disorders appeared, and with return of sanity there was return of asthma. As to *hay asthma* we believe that it will be found to occur more commonly in neurotic families than in others, that it may develop as a sign of degeneration of the nervous system, in fact, that it may appear as an inherited or acquired neurosis, and that with the onset of other neuroses the hay asthma may disappear. In one case a lady of about thirty, who had suffered from hay asthma every spring, so that she had specially to be provided for at that season, became insane during the winter, and remained so during early spring, and it was a question of grave moment to her friends what they should do with her if she were still insane and unable to be moved as usual to a healthy sea-

* See also art. Asthma and Insanity.

side place. We were able to promise that as long as she was insane they need not fear the hay asthma, and our promise was fulfilled, but with return of insanity the symptoms of hay fever returned. In another case a man who had been a great sufferer from hay asthma became excited and soon showed marked signs of general paralysis of the insane, and with these symptoms, for the first time for many years, he was completely free from any trouble from hay. In *chronic bronchitis*, of the variety to which we have referred, similar accounts have been given us, thus, a lady of about sixty, who had for seven or eight years been a subject of chronic bronchitis which rendered her life almost a burden to her for all the winter months of the year, became actively melancholic, suicidal and deluded, and at the same time was free from her bronchitis. In one such case there had been two attacks of melancholia and each of these was associated with freedom from the recurrent bronchitis, and so we feel justified in tracing an analogy between the two; and it is interesting further, under this head, to remark upon the alternation which may occur between the symptoms of phthisis and nervous disorder, so that the phthisical patient becoming insane ceases to be hopeful and has no cough, whereas the latter may become sane and have a return of hopefulness and a return of cough.

Rheumatic Fever and Insanity.—In some cases of rheumatic fever in which there is hyperpyrexia with delirium all joint pains cease, and it is noteworthy that in some cases of acute rheumatism all joint affections suddenly pass away to be replaced by mental disorder either of the maniacal or melancholic type. In some of these cases what has been called metastasis to the brain takes place, but as a rule we think the two have to be looked upon as related in a less clear or explicable way than by transference of an inflammatory process from one organ to another. It was doubtful for a time whether the medical treatment might not have had something to do with the arrest of the rheumatic process, but experience leads us to believe that the change, whatever it is, is quite independent of the mode of treatment. The following case is a good example. A young lady of five-and-twenty, living in London, who was generally healthy, but with a rheumatic history in the family, had after slight dyspeptic symptoms a severe attack of rheumatic fever, for which she was treated by salicylic acid, and within forty-eight hours the whole

of the joint affections passed off, but she was changed in habit and manner. Very rapidly she developed what was thought to be delirium, but there being no increase of temperature it was decided to send her to an asylum. Here she was maniacal in an extreme degree, and showed no signs of the rheumatic attack till quite suddenly, during one night, her knees again became red and tender and the mind began to clear. In twenty-four hours the rheumatic fever was again re-established and she was sane. This time salicylic acid was not given, but if we remember rightly, only simple salines. This notwithstanding, after a couple of weeks there was a second remission of rheumatic fever and recurrence of mental disorder. Later the rheumatic fever slowly passed away, after it had lasted some weeks, and the mind was restored, the patient keeping well without recurrence of rheumatic fever. It is more common in our experience to meet with cases in which the mental attack takes the place of the rheumatic fever, and is only to a very slight extent again replaced by any joint affection.

Gout and Insanity.—What the connecting link between these two disorders is we cannot clearly point out. At present we have only to consider that occasionally an attack of insanity seems to replace an attack of gout, and that an attack of gout may take the place of insane symptoms. It is noteworthy that in some cases in which a gouty patient has become suddenly melancholic, the attack may come on quite suddenly, and quite early in the morning, so that a patient who has been liable to recurrence of gout is found intensely depressed on a certain morning, and from that time remains deluded and suicidal, no change occurs till, some morning early, he has an attack of gout, when all depression of mind passes away. We have elsewhere recorded the case of a patient in Bethlem who, after many years of gout, suddenly developed the most intensely suicidal melancholia. He made repeated attacks on his own life, and when in Bethlem was considered to be one of the most suicidal and dangerous patients we had. Constant care and watching were required to prevent him effecting his purpose. This continued for some months, till one morning in going round the wards we were pleased and astonished to hear the patient's voice in a cheerful way saying "Good morning." We noticed that his foot was raised, and wrapped in wadding, and he told us it was "all right now," as he had got "his old friend back," and "please God I'll

never lose it if I can help it." This is an example of the type of disorder which is common. We would say that there are other varieties of gouty disorder which deserve consideration, but which are not directly connected, as far as we know, with any alternation, except, that instead of fully developed gout, one meets with cases of mental depression occurring in gouty subjects which follow a more or less definite course; thus the depression is most marked in the very early morning, and persists until mid-day, when it slowly becomes less, and by six or seven o'clock has all but passed off, and during the evening no one would suppose that the patient had been intensely melancholy in the early morning. These cycles of depression recur and recur with pretty regular precision unless treated from a gouty point of view. Along with gout we must mention the fact that eczema and asthma, as already referred to, may be met with in alternation with insanity. We have met with several cases in which the recovery from skin eruptions of a gouty character has been associated with mental breakdown, though, on the other hand, we must own that more frequently we have met with eczema occurring, associated with mental disorder in gouty subjects. So that in some cases, where there was a marked gouty history, insanity and eczema seem to take the place of well-marked attacks of gout.

Diabetes and Insanity.—Dr. Maudsley pointed out many years ago that there was a relationship between diabetes and insanity. That diabetic parents might have insane children, or insane parents diabetic children, and we have gone one step further, and have pointed out that diabetic patients may become insane and lose their diabetic symptoms, so that what is true of the individual may seem to be true of the family, that there may be an alternation in the generation as well as in the individual. Diabetes, as an acute disease, may run a fairly rapid course in a young patient, and may then suddenly stop, so that the polyuria and the glycosuria may both cease, the appetite may become natural, and every other special symptom of diabetes may disappear, while the mind is disturbed by some form of delusion or other. In the cases which we have hitherto met with there has generally been dread, suspicion, or depression, taking the place of the diabetes. Diabetes in these young patients probably is only arrested for the time, and, after the restoration of mind, probably the disease will make rapid progress; but in some cases of chronic diabetes mental disorder may occur for a

time, to be again replaced by diabetes, which, in its turn, may again be replaced by insanity. Thus, there may be a double column, as it were, of alternations. Even in general paralysis of the insane diabetes may occur, and for a time, with the onset of acute symptoms, the diabetes may disappear, to reappear when the disease has made more rapid progress, so that a diabetic man of about fifty, who for years had suffered from this disease, when he became extravagant and excited lost all symptoms of the diabetes, which symptoms only appeared a short time before his death from general paralysis of the insane.

GEO. H. SAVAGE.

ALTRUISM (*alter*, another). A term employed by Auguste Comte to designate the mental state opposed to that which has received the name of egoism. In physiology it has been used to express the desires or instincts (sympathetic instincts) directing the conduct rather in the interests of others than of the individual himself. It is exemplified in the sentiments of friendship, veneration, and goodness. It is the source also of domesticity and sociability; sentiments recognisable in animals as well as in man. A departure from altruism and a leaning towards egoism, mark some of the early phases of mental affections.

ALUCINATIO (*hallucinor*, I wander in mind). Another form of Hallucination.

ALUSIA (*ἀλύω*, I become insane). A term for mental deception, error, or misconception, hence equally applicable to delusions, illusions, and hallucinations. (Fr. *hallucination*; Ger. *Missgriff*.)

ALUSIA ELATIO (*ἀλύω*; *elatio*, a lifting up, elevating). Mental extravagance.

ALUSIA HYPOCHONDRICA (*ἀλύω*; *ὑποχονδριακός*, from *ὑπό*, under; *χόνδρος*, cartilage). Lowness of spirits; also a synonym of Hypochondriasis.

ALYSMUS (*ἀλυσμός*, from *ἀλύω*, I wander in mind). A term for the mental anxiety and mournfulness of spirits generally accompanying disease. (Fr. *alysme*; Ger. *Unruhe*.)

AMAUROSIS, HYSTERICAL (*ἀμαύρωσις*, a becoming dull of sight, from *ἀμαυρόω*, I darken; *hysteria*). Partial or total loss of vision occasionally observed in young persons of both sexes. It is unattended by symptoms of irritation or inflammation, and usually disappears under treatment directed to the general condition of the system. (See **HYSTERIA**.)

AMAXOPHOBIA (*ἄμαξα*, a cart; *φόβος*, fear). A morbid fear of being in a waggon or cart; a condition similar to agoraphobia, claustrophobia, &c. (An example of

the needless multiplication of terms. If cart, why not omnibus, hansöm, &c.?)

AMBLYPHIA (ἀμβλύς, dull; ἀφή, the sense of touch). Diminution or imperfection of the sense of touch.

AMBLYOPIA HYSTERICA (ἀμβλύς, dull; ὤψ, the eye; *hysteria*.) Dimness of vision occurring in the hysterical.

AMELECTIC (ἀμελής, indifferent.) Careless or apathetic.

AMELEIA (ἀμελεία, indifference.) The condition of apathy, listlessness.

AMENOMANIA (*amonius*, agreeable; *μανία*, madness). A term employed by Rush to indicate partial insanity of a gay and joyous character; the monomania proper of Esquiroil. It usually takes the form of a tranquil mania, the patients being infatuated with their beauty, grace, talents, mind, dress, titles, or birth; they seize on the cheerful side of everything, are happy, joyous, and communicative. Their impressions are vivid, their affections energetic, and their determinations violent. They are susceptible and irritable, disliking opposition and restraint, and are soon roused to anger and even fury.

AMENORRHŒAL INSANITY (ἀ, neg.; μήν, a month; ῥέω, I flow). Insanity occurring at each menstrual period, sometimes accompanied with homicidal impulse. (See MENSTRUATION and INSANITY.)

AMENTIA (a, priv.; mens, the mind). A synonym of congenital idiocy, to which it ought to be restricted; loosely applied to fatuity, mental imbecility. A term employed both by Vogel and Crichton; Vogel included it with mania and melancholia in his class of paranoïæ. In Crichton's classification amentia included fatuitas memoria imminuta, perceptio imminuta, vis idearum associandi imminuta, vis fingendi imminuta, and vis iudicandi imminuta. (See IDIOCY, ANŒA, APHROSYNE, DEMENTIA, PARAPHROSYNE, STOLIDITAS, &c.) (Fr. *anoïe*, *idiotisme*, &c.; Ger. *Blödsinn*, *Idiotismus*, *Raserie*, &c.)

AMENTIA ACQUISITA (a; mens; *acquiro*, from *ad* and *quaero*, I seek). Imbecility from accidental circumstances; acquired imbecility.

AMENTIA CONGENITA (a; mens; *congenitus*, born with). A synonym of Congenital Idiocy.

AMENTIA OCCULTA (a; mens; *occultus*, hidden). An old term applied to those cases of insanity in which the motive for the injury of a person has been present, but never expressed.

AMENTIA SENILIS (a; mens; *senilis*, belonging to old age). The intellectual deficiency of the aged. (See OLD AGE.)

AMERICA (United States), Provision for Insane in.—The United States Government makes provision only for the insane of the army and navy and for insane persons having a residence in the district of Columbia. The district of Columbia is a territory embracing sixty square miles, in which is located Washington, the capital of the country. The Congress of the United States has enacted no lunacy code, and its legislation relating to the insane has been limited to the creation of the Government Asylum for the Insane, located in the city of Washington, and to provision for its maintenance. There is no uniform and universal code of lunacy legislation of the general Government that is applicable to all the States of the American Union. Provision for the care of the insane and all legislation concerning them devolve upon the several forty-two States now composing the United States. To each State is reserved an autonomy in respect to its internal affairs. While there may be resemblances, there is no uniformity in the lunacy laws of the several States. States are divided into counties, or districts, set apart for the administration of justice and other purposes. Counties are subdivided into townships, which may contain incorporated cities or cities possessing charters. States have the power to create hospitals or asylums for the insane, to levy taxes for their maintenance, and, as State care is usually wholly inadequate, the counties and municipalities have supplemented the State work. Hospitals for the insane have also been established by the benefactions and efforts of benevolent individuals and by religious Orders. Private asylums for the care of the insane exist in several of the States. The insane of the United States are cared for—

- (1) In one asylum created by the general Government;
- (2) In State asylums or hospitals provided by the several States;
- (3) In county and municipal institutions;
- (4) In incorporated hospitals and asylums;
- (5) In private asylums.

History.—Prior to the establishment of asylums for the insane they were permitted to wander at large, or were confined in gaols, in rooms in almshouses, in strong rooms in dwellings or out-houses—too often restrained with chains, deprived of light, and warmth in winter. Even at the present day instances of neglect, abuse, and barbarous restraints are occasionally developed, which recall the methods that might have existed in, and characterise, a less enlightened age. The earliest movement for the treatment and amelioration of the condition of the insane in the

country now known as the United States occurred in the city of Philadelphia, in the (then) province of Pennsylvania, in the year 1751. During that year the Provincial Assembly, with the approval of the proprietaries, Thomas and Richard Penn, passed an Act to encourage the establishment of an hospital for the relief of the sick poor, and "for the reception and cure of lunatics," known as the Pennsylvania Hospital. It is a noteworthy fact that the credit of originating the movement is due to Dr. Thomas Bond, a physician of Philadelphia; that Benjamin Franklin and members of the Society of Friends were identified with its inception; and that at that early day insanity was recognised by many as a disordered condition to be treated by physicians. Dr. Benjamin Rush was connected with this hospital for a period of twenty-nine years,* and Dr. Thomas S. Kirkbride was the medical superintendent for a period of forty-two years from the opening of the Pennsylvania Hospital for the Insane as a separate department of the Pennsylvania Hospital. Both so impressed themselves upon its work that this hospital, the pioneer institution of the kind in America, has exercised, deservedly, an important influence on all questions relating to the care of the insane. From the opening of this institution it has received 13,687 insane patients. In 1813 members of the Society of Friends established an asylum for the insane at Frankford, near Philadelphia. In 1818 the McLean Asylum was opened as a separate department of the Massachusetts General Hospital. The Bloomingdale Asylum, a department of the New York Hospital, received patients in 1821. The Hartford Retreat, Connecticut, was opened in 1824. The Mount Hope Retreat, Baltimore, founded by a religious Order of the Roman Catholic Church, was organised as an asylum for the insane in 1842. These institutions, and a few others of more recent date, are examples of incorporated charitable undertakings originating in private benefactions, a sense of religious duty, or representations of the medical profession, and have been supported mainly without grants of public money. There has been no tendency in recent years to add to the number of asylums of this character. The province of Virginia erected an asylum in Williamsburgh in 1773, which was the first governmental institution erected for the care of the insane in America. Owing to the disturbed state of the country, and its impoverished financial condition incident to and following the war of the Revolution, no further public movement

was made until the year 1824, when the State asylum at Lexington, Kentucky, was opened. During the decade ending with 1829, three State asylums were opened. During the sixty years succeeding, eighty-eight State institutions have been erected by the several States, and others are in course of construction at the present time. All the States have made some provision for their insane, except Montana. The generally accepted maxim announced by Horace Mann, that the dependent insane are to a certain extent the wards of the State, and the neglect and low standard of care prevailing in county almshouses, have exercised a widespread influence in the creation of governmental institutions for the insane. The State asylums are managed by boards of trustees or managers, appointed by the Governor or State Legislature, which have power to appoint a medical superintendent and assistant officers, but it is usually on his nomination. There is no uniform method of support. Some of the States make annual or biennial appropriations for the entire maintenance of the institution from a general fund raised by taxation, while other States pay the salaries of officers from a general fund, and authorise the admission of patients on an order of a county officer at a fixed charge against the county or town from which they are sent. A plan of dividing the charge between the State and county also exists. The temptation to lessen the burden of cost of the indigent insane is an inducement to send such cases to county almshouses, where it is uniformly found that insufficient means for their proper care are provided. The tendency of public sentiment is towards the assumption by the State of the whole support and supervision of the indigent insane. County almshouses and municipal asylums supplement the work the State has undertaken to do in part. While some of the latter are well conducted, the management of the former, as a rule, is characterised by neglect and abuse, and is discreditable to the communities in which they are located. The county almshouse system has been, and is, a bar to the adoption of a better plan of State care of the insane poor in consequence of its cheapness and small cost to the taxpayer. It can only be supplanted by awakening the public conscience to a sense of its duty towards its helpless wards.

Statistics.—The number of insane in the United States, according to the census of 1880, was 91,997, classified as follows:—Males, 44,408; females, 47,589; native, 65,651; foreign, 26,346; white, 65,840;

* He delivered lectures to students on insanity.

coloured, 6157. The ratio of insanity in 1880 was 1 to 545 of population. In the older and more populous States, as Massachusetts, New York, and Pennsylvania, the ratio was respectively as 1 to 347, 360, and 519 of population. In States organised later, which have received a young and vigorous stock from the older States, as Iowa, Kansas, and Nebraska, the ratio was, respectively, 1 to 638, 906, and 1027 of population. Twenty-eight per cent. of the whole number of insane and 38 per cent. of those in asylums were of foreign birth. Of the whole number of insane in the State of New York, 44 per cent. are of foreign birth. The proportion of foreign-born insane to foreign population above the age of fourteen years in the United States is 1 to 232, in the State of New York 1 to 182, in Pennsylvania 1 to 250.

Foreign immigration is composed of both the strong and weak. The latter have a limited ability to overcome the trials incident to a life in a new country, to encounter unaccustomed climatic conditions, and to bear up against the depression which follows a severance of relations with their native land. All of these experiences are added factors in accounting for the disproportionate amount of insanity among the foreign-born. In 1889, forty-one of the forty-two States of the American Union had erected and opened ninety-one asylums or hospitals for the insane, accommodating 61,272 patients. The aggregate expenditure for the maintenance of these institutions in the year 1889 was \$11,412,107. The estimated cost of the asylum and hospital plant in the country, exclusive of amount expended by counties and municipalities, is \$70,000,000.

Plans.—The earlier plans of asylums were prepared at a period when the care and treatment of the insane were in a transition stage. There was little knowledge and experience available in the country to guide in the construction of asylums and hospitals, and the public mind was slow to accept the view that insanity was a disease to be managed by physicians, or that plans and environments were important elements to be considered in its treatment. The earlier plans were prepared abroad or suggested by actual observation of institutions existing in other countries, and contemplated a congregation of patients. As many continental asylums were founded by religious Orders, it is easy to explain the resemblance of some of the asylum plans to houses occupied by those bodies for other purposes than the care of the insane. The administration building, with wings extending on either side in straight lines,

containing corridors with rooms on either side, or with reverse wings at the extremity of the first sections, forming three sides of a quadrangle, with a central court, seems to have been an approved plan of that day. During the decade ending with the year 1850, modifications of the earlier plans were proposed, in accordance with which extensions of wings, or sections, were projected in right lines, instead of reverse lines, but in an echelon formation. These changes were largely due to plans and propositions formulated by Dr. Kirkbride, and were generally accepted as a guide in the erection of new hospitals or asylums during two succeeding decades. The asylum for the chronic insane at Willard, New York, authorised in 1865, consisting of a central asylum structure, detached groups of blocks, and infirmary buildings, is an instance of a further departure from previously established plans. The movement contemplated the segregation of the insane on a large farm; an extended classification of patients; a decided reduction in the cost of construction, and, by the aggregation of numbers, a corresponding decrease in the cost of maintenance. A hope was indulged that its successful administration would deal a fatal blow to the county almshouse plan of care of the insane. At Kankakee (Illinois), Toledo (Ohio), Kalamazoo (Michigan), Poughkeepsie (New York), Washington, and at Ogdensburg (New York) are to be found asylums showing to what extent segregation has been and may be carried in buildings detached from a central structure. Ten other asylums have supplemented their accommodation by the addition of detached blocks or annexes. The State Hospital at Buffalo (New York), with its administration block, and blocks connected by corridors in the form of an arc of a circle, and the hospital at Norristown (Penn.) are examples of a combination of some of the features of the congregate and segregate systems. All of these changes aim to adapt plans to the various and varying conditions of the insane, and indicate the direction in which further changes may be expected. As the supplemental buildings are occupied principally by a quiet class of chronic patients, and as they may be increased in number, it is probable that the question of separate provision* for the acute and chronic insane will be postponed to a distant day, as there is a more general accord with the proposition to place all under State care in State institutions on this plan. As an objection has been raised to aggregation of large numbers in one establishment, it

* That is to say, in separate institutions.

may be overcome, as has been suggested, by the erection of small blocks for the special care and treatment, and individualisation, of recent and curable cases. The cost of construction of hospitals and asylums on the congregate plan has averaged \$1000 per bed, and in exceptional instances it has reached \$2500 per bed. It is claimed that asylums erected on various plans of segregation have cost from \$700 to \$800 per bed. The cost of support in the State institutions varies from \$3 to \$4 per week. In several of the States no distinction is made between private and public patients, all being admitted on equal terms. In other States provision is made for the reception of private patients, who pay a slight advance on the actual cost of support. The average cost in the incorporated asylums, as the Pennsylvania, Bloomingdale, and McLean, is \$10, \$15, and \$16 per week.

Private Asylums.—The first private or proprietary asylum for the insane in the United States was established by Dr. Nehemiah Cutter, in Peperell, Massachusetts. He received patients for treatment in his house in 1822. The whole number of institutions of this character does not exceed eighteen, and they severally conduct their operations either by virtue of an act of incorporation granted by a State Legislature, or a licence from a State Board, empowered to act.

Criminal Asylums.—The State asylum at Auburn, New York, and at Iona, Michigan, for insane criminals who have committed capital crimes and felonies, and convicts who may become insane while undergoing sentence in the State prisons, comprise the special provision made for this class. The State of New York is about to abandon the criminal asylum at Auburn, in close proximity to the State prison, and occupy a new asylum in course of construction on improved plans at Matteawan. In other States the criminal insane are detained in the State asylums and the convict insane in the State prisons.

Governmental Supervision.—As each one of the State asylums and hospitals is managed by a Board appointed by the Governor or Legislature, or by the concurrent action of both branches of the State Government, it might be inferred that the interests of the insane and the State would be sufficiently guarded. In one half of the States there are two or more asylums, and, in addition to those in asylums, a large number of insane persons are cared for in county and municipal asylums and almshouses. Fifteen States have created Boards possessing general advisory and visitorial powers wherever the insane are detained,

as well as power to examine all State and county charitable institutions. They make regular reports to the Legislature, advise about the yearly estimates, investigate alleged abuses and mal-administration, and invoke judicial power under certain circumstances to re-enforce their recommendations.

Commitment of the Insane.—The admission of patients to the asylums and hospitals is regulated by the statutes of each State. Four of the States require a verdict of a trial jury to determine the existence of insanity. Four States provide for the creation of a permanent commission in each county, which possesses trial powers, and forms a conclusion as to the existence of insanity to a degree to require treatment or custodial care in an asylum. In the remaining States a certificate of insanity signed by one or two physicians, sworn to before a magistrate or judicial officer, or an order of a judge based on a medical certificate, is necessary for admission to an asylum.

Treatment and Management of the Insane.—In 1812, after twenty-nine years of experience in the treatment of the insane, Dr. Benjamin Rush published his book entitled "Observations upon the Diseases of the Mind," which may be regarded as an exposition of the practice of that period. He advocated generally copious bleeding, low diet, purges, calomel, and opium. Among his successful cases he reports that one lost in forty-seven bleedings about 470 ounces. It must be borne in mind that Dr. Rush received his early training partly in Edinburgh and London, and that he witnessed this plan of treatment in Bethlem and St. Luke's, London. He applied the same principles in the treatment of insanity that guided him in his general practice, and which were commonly accepted at that day. In the contemporary asylum in Virginia the plan of treatment of insanity was to deplete by bleeding and depressing remedies. At the expiration of twenty years after the publication of the book of Dr. Rush, such a reaction in practice had taken place that general blood-letting was practically abolished in American asylums. If at one period the system of treatment of insanity was characterised by active medication and measures of repression, it was supplanted by an opposite or expectant plan and what are understood to be the moral measures applicable to the treatment of the insane. Dr. Ray, in his report for 1844, says: "In the treatment of insanity, it is no departure from the ordinary principles of therapeutics to give to those means which act directly on the mind the

preference over such as are applied directly to the corporeal system. General bleeding, once considered indispensable in acute mania, was utterly discarded forty years ago by Pinel, is practised with increasing caution and distrust by the English, and is now seldom used in any American hospital. Medical practice of the present day is confined to combating symptoms as they arise."

Drs. Tod, Woodward, Brigham, Bell, Kirkbride, and others expressed similar views in their annual reports from 1844 to 1883. Drs. Tod and Woodward recommended opium as a narcotic, in large and frequent doses. Hyoscyamus and conium, the latter in combination with carbonate of iron, were in general use. At the present day opium is rarely used, but there is a chance that in certain cases of melancholia with agitation its effect may be favourable. Symptoms are still combated, but their significance is better understood, and the materia medica has been enriched by more effective remedies. Experience has demonstrated the condition of acute insanity to be a state of innervation due to deficient or defective nutrition of the brain; deterioration of the quality of the blood; disturbance of the blood-supply, that may result from organic change in the intra-cranial circulation; disorder of the vaso-motor system; and degenerative changes of the nervous mass. Insomniac states are not sufficiently understood, but are more effectively treated with hyoscyamine, sulphonal, chloral, paraldehyde, bromide of sodium, and ergot than by the narcotics formerly used. Tonics and salts of iron are prescribed for long periods. Liberal quantities of milk, eggs, and nutritious food are administered, in addition to the usual meals, to acute cases that offer a prospect of recovery. Mechanical restraint has been freely used in the asylums of the United States from their earliest history. The practice has had its defenders and apologists in medical meetings and in the annual reports of asylums and hospitals. During the past ten years there has been, however, a decided reaction of opinion, and reduction in the use of mechanical means of restraint. In 15 per cent. of the asylums it may be said to be abolished. It is still used to an inexcusable extent in some institutions, but no superintendent now appears bold enough to advocate its promiscuous use, as formerly. No non-restraint dogma has been proclaimed; its judicious use for effecting strictly medical ends in exceptional cases is regarded as justifiable.

The improved system is due to greater

knowledge of the management of the insane; to the better training of attendants; to more comfortable furnishings, pleasing environments, and occupation. It is conceded that the assumed necessity for restraint does not now arise as formerly. So much of the good management of asylums depends upon the quality of service rendered by attendants that it has been deemed important to organise systematic instruction and training to fit them to perform their duties more intelligently. The course of instruction pursued at the training school of the McLean Asylum, Boston, may illustrate what can be accomplished in this direction.

Occupation and Diversion.—Occupation and diversion have always had some place in the daily routine, and, with other changes, have received increased attention in recent years. The amount of labour performed and number employed depend upon the class of patients received, climatic conditions, and the habits of the population from which an asylum receives its patients. The average number employed in those institutions that make reports is 44 per cent. The diversions and amusements depend upon the resources of the staff, and others who may co-operate, and every asylum has something to report in this direction at the end of the year. The late Dr. Kirkbride made provision for some entertainment of his patients every evening of the week for nine months of the year, a routine which has been enlarged so as to embrace some portion of each day.

Results.—The early reports of asylums and hospitals present results that appear much more favourable than are now obtained. This may be explained in part from the fact that preference in admission was given to recent and presumably curable cases. Such cases were sent to the one existing institution in the State, instead of dividing them among several asylums, as now. A source of error, as compared with statistical methods of the present day, consisted in counting cases as persons in making up tables of results. The recoveries of the present day, calculated upon admissions, may be stated to be 30 per cent., although numbers are yearly removed in a convalescent condition, eventually making a good recovery, but appear on the books as discharged improved. There has been a decided reduction in the number of deaths from acute insanity. The average mortality in different asylums varies on account of the discharge of incurables to make room for fresh cases, which impairs the value of statistics, as the cases are lost sight of. The mortality in asylums varies from

5 to 7 per cent. on the average number resident. The average insane life of 1666 patients who died in the Willard Asylum during twenty-two years was ascertained to be eleven years and a half.

Hindrances to Progress.—Among these may be named, first, frequent changes in the medical and administrative staff of asylums in too many of the States following a change in the political administration; secondly, the creation and toleration of departments in county almshouses for the insane poor, where the temptation exists to care for them at the lowest rate of animal existence, without adequate medical and other attendance, notwithstanding many need both; thirdly, the insecure tenure of office, and moderate compensation for services, which deter young men from entering and preparing themselves for this department of medical practice; the lack of a system of efficient State inspection and supervision, and the failure to recognise the broad principle that the insane poor are, like infants and orphans, in a sense the wards of the Courts and State.

Insanity as a Defence in Criminal Cases.*—As in England the jurisdiction of a Court of Chancery over the person and estate of a lunatic is recognised in the United States, although changes by legislative enactments have been frequently made in the different States in practice and procedure. In such matters the jurisdiction is that of a civil and not of a criminal court, except in cases when a lunatic is charged with crime. The respective States have the right to make such laws regarding the subject as are not inconsistent with the constitution of the United States, which prevents the deprivation of life or property without due process of law. The common law jurisdiction of a Court of Oyer and Terminer to decide the fact of insanity in a person charged with crime, is also the law in the United States.

The rule illustrated in the earlier volumes of the State trials that insane persons could not be put upon trial or convicted, is also the law in America, and the basis for the legislation of the present day in force in almost all the United States affirming that rule, is the Act of Parliament, 39 & 40 Geo. III. chap. 94, June 1800. Prior to that date it was doubtful if a Court of Oyer and Terminer had power to confine an insane person who was upon trial, acquitted by reason

of his mental condition. In some of the United States its provisions are repeated almost verbatim, especially that the jury which is to decide the crime alleged in the indictment, has also in their charge the question of mental condition.

The practice and procedure adopted by State legislation in criminal cases are reviewed by the Supreme Court of the United States, when it appears upon the record that there is a violation of the provision respecting a conviction without the due process of the law. This phrase has been defined to be the administration of law in its regular course, as adopted by courts of justice, and includes a complainant, defendant and a judge, with regular allegations and opportunity to answer at a trial according to the settled course of judicial proceeding. The earlier criminal procedure in the United States followed that of England, as indicated by the provisions of the Act of 39 & 40 Geo. III. chap. 94, but within later years in some of the States, by statutory regulation, the defence of insanity can be set up only by a special plea, and in other States it has been enacted that it shall be tried as a special issue, independent of that arising upon the charge in the indictment.

In the State of Arkansas, for instance, if the Court is of opinion that there are reasonable grounds to believe that the defendant is insane, all proceedings in the trial shall be postponed until a jury be empanelled to inquire whether the defendant is of unsound mind, and if the jury should so find, then the Court shall direct that he be imprisoned and kept until he be restored to reason, and thereupon be conveyed to the gaol of the county to answer the charge contained in the indictment. Similar provisions are in force in California, Iowa, Illinois, Kentucky, Missouri, New Jersey, New York, and in other States. They relate to the preliminary issue, when the defendant appears to be insane upon arraignment and incompetent to plead or understand the nature of the charge brought against him. In some of the States the procedure in such preliminary issue is regulated by legislative enactment, so that the defendant shall have the affirmative of the issue and the right to begin and conclude to the jury. It has been decided, however, that the preliminary trial is not a matter of right belonging to the accused, but is within the discretion of the court. It is granted when for any good and sufficient reason the court has doubt that the defendant is of unsound mind at the time of arraignment, or when the case

* This section has been kindly prepared by William Wilkins Carr, Esq., of Philadelphia, the author of the work whose title is appended to this article.—Ed.

is called for trial, but as a general rule the question of insanity as a defence is determined at the trial upon the indictment. The tests of criminal responsibility have been stated, in a recent case in the State of Pennsylvania, to be now well settled. It is there declared that moral insanity is not sufficient to constitute a defence unless it be shown that the propensities in question exist to such an extent as to subjugate the intellect, control the will, and render it impossible for the prisoner to do otherwise than yield thereto. No mere moral obliquity of perception will protect a prisoner from punishment for his deliberate act. The jury must be satisfied, with reference to the act in question, that the reason, conscience and judgment of the accused were so entirely perverted as to render the commission thereof an overwhelming necessity.

In cases where the prisoner commits an act under a delusion that certain facts existed which were wholly imaginary, but which if true would have been a good defence, and the jury are satisfied that such delusion clearly existed, then it will entitle the prisoner to an acquittal.

The most authoritative expression of modern English law, McNaghten's case, 10 Cl. & Fin. 200 (1843), upon the subject of insane delusion in relation to acts which if committed by a sane man would be criminal, has been very generally accepted as correct, and is laid down in the courts of the United States with more or less precision in many cases. The most recent text-book writer (Buswell, on Insanity, par. 435) states: "That its soundness as an abstract proposition is beyond question, but the language of the rule as stated seems open to misconstruction, if, as it has often been construed, the rule appears to have a tendency to mislead juries so as to induce them to accept as the test of criminal responsibility the question whether the accused *in fact* believes his act to be wrong and criminal—whereas the question is whether he had mental power which *ought* to have enabled him to choose the right and avoid the wrong."

Conclusion.—Much has been done in the development of public sentiment favourable to the interests of the insane, and the dissemination of information calculated to eradicate erroneous opinions and prejudices regarding asylums and hospitals by annual reports of asylums, reports of State Boards of Charities, and medical journals devoted to insanity. The Association of Superintendents of American Institutions for the Insane, organised in

1844, has been an exchange for the presentation of views on the treatment and management of the insane and their various legal and social relations. The membership consists of superintendents and assistant medical officers, and numbers 252. Although, in every community, men and women and the medical profession have been ready to promote the interests of the insane, the name of Dorothea L. Dix stands foremost among all. Her efforts in improving the condition of the insane were not confined to her native State of Massachusetts, but extended to other States and distant lands. Her life was devoted to their interests, and it is stated that no less than thirty asylums owe their establishment directly or indirectly to her persistent efforts. J. B. CHAPIN.

[References.—U.S. Census, 1880. The Insane in the United States and Canada, by D. Hack Tuke, M.D., 1885. Trial of Lunatics, by Wm. Wilkins Carr, Philadelphia, 1890.]

AMIMIA (*â*, neg.; *μίμος*, a gesture). The loss of power of communicating thought or accompanying speech by gestures.

AMNEMONIC (*â*, neg.; *μνημονικός*, pertaining to memory). A term applied to affections characterised by loss of memory.

AMNEMOSYNE (*â*, neg. *μνημοσύνη*, remembrance). Forgetfulness.

AMNESIA (*ἀμνησία*, forgetfulness). A defect of memory, absence or want of remembrance, forgetfulness. Amnesia may be: (1) congenital, when it is usually associated with the organic changes found in genitous idiocy; (2) acquired, resulting from gunshot and other wounds of the head, from disease of the brain or its coverings—*e.g.*, fungus of the dura mater or arachnoid, cancer, tubercle, ramollissement, chronic diffuse meningo-encephalitis, hæmorrhages, cysts, abscesses, exostoses, syphilitic tumours, &c.; from insolation, chronic abuse of alcohol or opium, chronic plumbism; from anæmic states during convalescence; from fevers, cholera, hæmorrhages, venereal excesses, severe mental shock, peculiar functional conditions (*e.g.*, the trance state of hysteria), old age; from various degenerative processes affecting cerebral nutrition (*e.g.*, dementia, general paralysis, &c.). The defect of memory may be: (a) coincident with and dating from the lesion causing it; events happening prior to that time are then retained; (b) retrospective, but even then it is the later processes that cannot be revived, the recent not the remote past is less vividly remembered. In senile amnesia and other cerebral degenerative diseases, the events of some

years back are retained, while those of later years are lost. The quality of amnesia also shows variation. The most usual defect is shown in the primary loss of the more special acquisitions—*e.g.*, proper names, then nouns and names of qualities, but in some cases the amnesia is only partial; that is to say, there is considerable or complete loss of some class of ideas. With amnesia there are closely associated two other mental defects, deficient power of attention and incoherence of idea, dependent in a great degree on the same degenerative change or lesion inducing the amnesia. (See also MEMORY, DISORDERS OF.) (Fr. *amnésie*; Ger. *Gedächtnisswache*.)

AMNESIA VERBAL (*ἀμνησία*; *verbum*, a word). The loss of the memory of special names or words. This may be due to the loss of the visual or auditory mental image of the word, or to the loss of the associations surrounding such a word; the latter is the process retained longest.

AMNESIC APHASIA (*ἀμνησία*; *ἀφασία*, speechlessness). Loss of the memory of words. This has been referred by Wernicke to an interruption of the path between the motor and sensory centres, by disease of the island of Reil, and has been termed by him "conduction-aphasia" ("*Leitungsaphasia*"). The condition is often conjoined with slight word-deafness, and then is probably due to a partial lesion of the auditory word-centre. It may not only be a residual condition left by partial recovery from a considerable degree of word-deafness, but it may be left by recovery from complete and pure motor aphasia. When constituting the sole defect from the beginning, it is commonly regarded as a distinct variety of aphasia, and, as notified above, has been ascribed to interruption of the conducting path between the auditory and motor centres (Gowers).

AMNESTIA (*ἀμνησία*, forgetfulness). Another form of Amnesia.

AMEOMANIA (*amoënus*, agreeable; *μανία*, madness). (See AMENOMANIA.)

AMYLENE. (See SEDATIVES.)

AMYOSTHENIA (*ἀ*, neg.; *μῦς*, a muscle; *σθένος*, power or force). Failure of muscular power without obvious disease of muscles or nerves. It is best seen in cases of anæmia, chlorosis, dyspepsia, hysteria, hypochondriasis.

ANEMIA OF BRAIN. (See PATHOLOGY.)

ANÆSTHESIA (*ἀναίσθησία*, want of feeling, from *ἀ*, neg.; *αἰσθάνομαι*, I feel or understand). Loss of sensation. It may be the result either of disease of the

central nervous system or of the nerves supplying the part, or of the action of agents abolishing the functional activity of the peripheral terminations of the nerves, their conducting power or the perceptivity of the nerve centres. It generally involves the whole thickness of the tissues of the part affected, but may be confined either to the skin or to the muscles. It may be gradually established, sensation becoming more and more impaired, or it may occur suddenly. In exceptional cases, although tactile sensation is lost, the power is retained of distinguishing differences in temperature or of feeling painful impressions. With regard to muscular sensibility, when this is lost there is almost always loss of muscular contractility, but in exceptional instances this is unimpaired. In cutaneous anæsthesia, reflex irritability may remain normal, or be increased, or destroyed, according to the cause of the loss of sensation. Sensory paralysis may be general, unilateral (hemi-anæsthesia), bilateral (sensory paraplegia), disseminated, or local. (Fr. *anaesthésie*; Ger. *Unempfindlichkeit*, *Empfindungslähmung*.)

ANÆSTHESIA, CENTRAL (*ἀναίσθησία*; *κέντρον*, the central point). Anæsthesia depending on disease of the central nervous system.

ANÆSTHESIA, COMPLETE (*ἀναίσθησία*; *complet*, full). Total loss of sensation. (Ger. *Gefühlsparylse*.)

ANÆSTHESIA, DISSEMINATED (*ἀναίσθησία*; *dis*, thoroughly; *semen*, seed; thoroughly scattered about). See HYPERTHERICAL ANÆSTHESIA.)

ANÆSTHESIA DOLOROSA (*ἀναίσθησία*; *dolorosus*, painful). That form of anæsthesia in which, although the sensation of touch, the special sensation, is lost, there is great pain in the part.

ANÆSTHESIA GUSTATORIA (*ἀναίσθησία*; *gusto*, I taste). **ANÆSTHESIA LINGUÆ** (*ἀναίσθησία*; *lingua*, the tongue). Loss of taste; synonyms of Ageusia (*q.v.*)

ANÆSTHESIA, INCOMPLETE (*ἀναίσθησία*; *in*, neg.; *complet*, from *con*, *pleo*, I fill). Partial loss of sensation. (See HYPÆSTHESIA.)

ANÆSTHESIA, MUSCULAR (*ἀναίσθησία*; *musculus*). A loss of the muscular sense without paralysis or necessary loss of ordinary sensation. It seldom occurs alone, but is generally accompanied by symptoms of serious nerve lesion. It produces awkwardness of movement of the affected muscles, and inability to perform any desired action unless the limb to be moved is carefully watched;

in darkness it often happens that no combined co-ordinated movement can be accomplished. It is sometimes found in hysteria.

ANÆSTHESIA OLFACTORIA (*ἀνασθησία*; *olfacto*, I smell). Loss of smell. (See HYSTERIA, GENERAL PARALYSIS, &c.)

ANÆSTHESIA OPTICA (*ἀνασθησία*; *ὀπτικός*, pertaining to sight). A synonym of functional Amaurosis. (See HYSTERIA, HYSTERICAL BLINDNESS.)

ANÆSTHESIA, UNILATERAL (*ἀνασθησία*; *unus*, one; *latus*, a side). (See HEMI-ANÆSTHESIA, HYSTERICAL HEMI-ANÆSTHESIA; HYSTERIA.)

ANÆSTHETICS and INSANITY.—In August 1887 the writer read a paper on this subject before the Section of Psychology of the British Medical Association, held in Dublin (see *Brit. Med. Journ.* December 3, 1887), and since that time we have met with other cases in which mental disorder was associated with the use of various anæsthetics.

Surgeons are still in doubt as to the part played by these agents in the production of insanity. They recognise mental disorder following operations, and consider that shock or mental troubles may be the real efficient in these cases. Mr. C. T. Dent, of St. George's Hospital, who, in this Dictionary, treats of insanity following operations, inclines more to the belief that other causes beside anæsthetics must be fully considered.

Our belief that these agents may, under certain conditions, produce insanity, is grounded on the following observations:

First, that any cause which produces temporary mental disorder may also produce disorder of a similar nature of a more lasting kind; that after administration of anæsthetics the patient may pass at once into a state of mental disorder; that patients, who have already suffered from insanity and are temporarily sane, may once more be made insane by the administration of an anæsthetic.

It is of rare occurrence, and is met with only in certain predisposed subjects. In our experience, such patients have been highly neurotic by inheritance or by acquisition. They were unstable from heredity or from physical causes, such as alcoholism, nervous exhaustion, and the like.

We have met with cases of mental disorder following the use of chloroform, ether, and nitrous oxide.

The disorder may be maniacal, often of the delirious type; stuporous; or, we believe, may be associated with true brain degeneration, and may resemble general paralysis of the insane.

The writer has elsewhere pointed out (*Brit. Med. Journ.*, December 3, 1887) that agents such as belladonna, alcohol, &c., which will cause delirium, may also set up mania of the delirious form. We have here to record that we have met several patients who, being physically and nervously weak, have passed at once from the unconsciousness of anæsthesia into states of mental excitement or stupor. The resemblance between the mental excitement which frequently occurs during the administration of an anæsthetic, and the more lasting disorder which may follow its use, is striking. In one case a lady, physically weak, who was further weakened by constant toothache, immediately after the administration of nitrous oxide became silly and excited, so that her friends thought she had been drinking. The state persisted for some weeks. In another case, an elderly man was operated upon for cancer about the rectum; ether was given, and during its administration nothing noteworthy occurred, but on his recovery of consciousness it was seen that he was strange in his manner. He was restless, incoherent, and silly; he had the appearance of a man partially drunk. We believed him to be a harmless dement, and he was taken to his home, where, after a few weeks, he almost suddenly recovered, and described the past as if he had been asleep all the time. The working of the mental faculties was suspended temporarily. In several cases we have met with, puerperal insanity followed the use of chloroform during labour, and in two at least there were other pregnancies in which no chloroform was given, which passed off without any mental troubles. In the paper above referred to, we recorded a case of acute delirious mania, which occurred in an alcoholic patient, following directly after the administration of nitrous oxide.

The best example we have yet met with, showing the affects which may follow the use of an anæsthetic, is that of a young man of nervous stock, who served in the Mounted Rifles at the Cape. He drank to excess, and led a very irregular life; he was admitted into Bethlem suffering from a very acute attack of mania, during which he injured his right hand by striking the doors and windows of his room; this hand became much swollen and very painful, during which time his mind cleared; it was thought necessary to place him under chloroform while his hand was being examined. No sooner did he begin to lose consciousness than his old delusions and tendency to violence returned, only again passing off when his consciousness was restored. Later, with the recovery of his

hand, his mind was again for a time disordered. Ultimately he recovered. In another case, a lady, who had already suffered from a very severe attack of acute delirious mania, and had recovered, had a relapse after the administration of an anæsthetic—chloroform, we believe—which was given for surgical reasons.

Though the use of an anæsthetic may give rise to mental disorder, arising some time after its exhibition, I think it is only fair to treat of such cases as exhibited symptoms immediately after its use.

As a rule, the disorder passes off suddenly; but this is not always the case. In some cases mental disorder arises, which may lead to chronic insanity, and we believe that in at least one case the anæsthetic started acute mental disorder, which passed into brain disease associated with general paralytic symptoms. Rest, quiet, and feeding during the earlier stages, followed by change of surroundings, and occupation of mind and body, are the proper lines of treatment. GEO. H. SAVAGE.

ANÆSTHETOSPASMUS (*ἀναίσθητος*, senseless, wanting in feeling; *σπασμός*, a convulsion.) Cramp or spasm of a limb with loss of sensibility. (See HYSTERIA, HYSTERIC SPASM.)

ANAISTHESIA, or ANAISTHESIS. (See ANÆSTHESIA.)

ANALEMPTIA or **ANALEMPTIA** (*ἀναλαμβάνω*, I restore or recover). Other forms of Analepsia (*q.v.*)

ANALEPTIA (probably a corruption of Analepsia, from *ἀναλαμβάνω*, I recover). A Paracelsian term for a species of epilepsy.

ANALEPSIA (*ἀναλαμβάνω*, I recover). An obsolete term for epilepsy from mere disorder of the stomach. (Joh. Anglicus, Ros. Angl. p. 35.) Meaning now confined to recovery from sickness.

ANALGIA and **ANALGESIA** (*ἀναλγησία*, void of pain, from *ἀν.* priv.; *ἄλγος*, pain). Insensibility to or absence of pain; the term is also used to denote indolence, a condition of ease. Sensibility to pain may be diminished with or without change of tactile sensation, and its loss is often included in the general term anæsthesia. It is a condition more or less present in drunkenness, in the torpor produced by anæsthetics, in commencing frostbite and similar conditions; it is also present in certain diseases of the brain, in epileptic seizures and the post-epileptic state, in some forms of hysteria, and in poisoning by many narcotics and the salts of lead. It occurs when the spinal cord is divided with the exception of the posterior columns (Schiff). (Fr. *analgésie*; Ger. *Schmerzlosigkeit*.)

ANALYSIS, PSYCHOLOGICAL (*ἀνάλυσις*, from *ἀναλύω*, I unravel; *ψυχή*, the soul or mind; *λόγος*, a discourse). The reduction to simpler conditions of complicated mental states. The discovery of general principles underlying concrete psychological phenomena.

ANAMNESIA (*ἀνάμνησις*, from *ἀνά*, anew; and *μνήσις*, memory). A term applied to the recalling to the mind of the phenomena which immediately preceded an attack of disease. Frequently observed in patients recovering from mental affections, especially mental stupor.

ANAMNESTIC SYMPTOMS (*ἀνάμνησις*; *σύμπτωμα*, an occurrence.) Phenomena occurring in a previous stage of illness which recur at each successive attack. The mental recurrences of impulsive insanity, epileptic furor, &c.

ANARTHRIA (*ἀναρθρία*, from *ἀν.* neg.; *ἄρθρον*, a joint, and so want of vigour). A term applied to an impairment of the articulation dependent on bulbar or general paralysis; when the loss of power of speech is complete, it appears to be invariably accompanied by aphonia.

ANARTHRIA LITERALIS (*ἀναρθρία*; *literalis*, belonging to letters). Inability to pronounce letters properly; stuttering, stammering, or slurring over letters.

ANASARCA HYSTERICUM (*ἀνά* through, *σάρξ*, the flesh). A transient swelling, generally of the abdominal parietes, in an hysterical person. (See PHANTOM TUMOURS, HYSTERIA.)

ANATHYMIASIS (*ἀναθυμίασις*, from *ἀναθυμιάω*, I cause to rise in vapour). An old term for hysterical flatus or "the vapours." (See HYSTERIA.)

ANAUDIA (*ἀ*, priv., *ἄυδή*, speech, voice). A synonym of Aphonia. (Fr. *anaudie*; Ger. *Sprachlosigkeit*.)

ANCIENTS, Insanity among the. (See HISTORICAL SKETCH OF THE INSANE, p. 1.)

ANDROMANIA (*ἀνὴρ*, a man; *μανία*, madness). An insane love of men; a term formerly used as a synonym of Nymphomania or Furor uterinus. (Fr. *andromanie*; Ger. *Mannsollheit*.)

ANDROPHOBIA (*ἀνὴρ*, a man; *φόβος*, fear). (See ANTHROPOPHOBIA.)

ANDROPHONIA (*ἀνὴρ*, a man; *φόνος*, murder.) Homicidal inclinations. Mania or melancholia with homicidal tendencies.

ANDROPHONICI (*ἀνὴρ*; *φόνος*). Diseases in which there are homicidal tendencies.

ANDROPHONOMANIA (*ἀνὴρ*; *φόνος*; *μανία*, madness). Homicidal insanity.

ANENCEPHALIA (*ἀν.* neg.; *ἐγκέφαλος*, the brain). Literally a congenital

absence of brain; also used as a synonym of Idiocy.

ANENCEPHALONEURIA (*ἀν*, neg.; *ἐγκέφαλος*, the brain; *νεῦρον*, a nerve). Duglison's term for defective mental or nervous action, due to central causes.

ANENERGESIA (*ἀνεργησία*, inactivity). Debility, want of energy, physical or mental. (Ger. *Unthätigkeit*.)

ANENERGIA (*ἀν*, neg.; *ἐνέργεια*, vigour, energy). Want or loss of vigour or energy, physical or mental.

ANEPITHYMIA (*ἀν*, neg.; *ἐπιθυμία*, passion or desire). Loss of any one or more of the natural appetites or desires.

ANHAPHIA, also **ANAPHIA** (*ἀν*, neg.; *ἄφή*), touch). Diminution or loss of tactile sensation. A synonym of Anæsthesia. (Ger. *Gefühllosigkeit*.)

ANIMAL MAGNETISM. (See HYPNOTISM.)

ANIMI AGITATIO (*animus*, the mind; *agito*, I trouble). Mental agitation or anxiety.

ANIMI PATHEMATA (*animus*; *πάθημα*, a calamity). The passions of the mind.

ANIMISM (*animo*, I give life to). A term formerly used to denote the Stahlian theory of the soul as the vital principle. Now generally used (Tylor) to express the general doctrine of spiritual agency in the operations of Nature.

ANIMISTS (*animo*). A term applied to those physiologists who believed that the anima, or soul, immediately actuated or influenced all the functions of the living body; also called Stahlians.

ANCEA (*ἄνοια*, want of understanding). Amentia or idiocy; also delirium; according to Mason Good, a variety of moria demens, being a general obliteration of the mental powers and affections; paucity or destitution of ideas, obtuse sensibility with vacant countenance, imperfect or broken articulation, and occasional transient and unmeaning gusts of passion. (Fr. *anoie*; Ger. *Blödsinn*, *Verstandeschwäche*, *Verstandeslosigkeit*.)

ANOESIA (*ἀνοησία*, want of understanding). Want of sense. (Fr. *anoésie*; Ger. *Sinnlosigkeit*, *Gedankenlosigkeit*.)

ANOIA (*ἄνοια*). Another form of ancea (*q.v.*)

ANOMIA (*ἀ*, neg.; *νόμος*, a law, order). Literally, lawlessness, abnormality; Rush's term for what he calls congenital defect of the moral sense.

ANORECTOUS (*ἀνόρεκτος*, without appetite or desire). Destitute of appetite; no desire for food.

ANOREXIA (*ἀν*, neg.; *ὄρεξις*, appetite). Want of appetite; also applied to abhorrence of or aversion to food, symptomatic

of certain mental affections. (Fr. *anorexie*; Ger. *Appetitlosigkeit*.)

ANOREXIA HYSTERICA (*ἀν*; *ὄρεξις*; *ὕστερα*, the womb.) A species of anorexia of hysteric origin described by Laségue and Gull; also known as Nervous Anorexia. It occurs chiefly in rapidly growing young girls from twelve to sixteen, who, without any organic cause, systematically refuse all manner of nourishment. Sometimes food in small quantities is taken in secret, but this is rare, and alimentation always remains insufficient, and they gradually emaciate until reduced to perfectly asthenic living skeletons. Commencing with the emotional agitation common to most hysterical affections, their condition induces a species of mental torpor, and they merely exist for a time, movement at last becoming impossible through the extreme weakness. The treatment consists in forced alimentation, isolation complete and continued, and massage (Weir-Mitchell). (See HYSTERIA, FUNCTIONAL NEUROSES.)

ANOREXIA MIRABILIS (*ἀν*; *ὄρεξις*; *mirabilis*, wonderful). A term for fasting: the fasting of fasting-girls. (See HYSTERIA, ANOREXIA HYSTERICA.)

ANOREXIA NERVOSA. (See ANOREXIA HYSTERICA.)

ANTENEASMUS (*ἀντιτείνω*, I rise up against or resist). A term used by P. Zacchias ("Quæst. Medico-leg.," l. ii. t. i. q. 18, n. 31 *seq.*) for a disease characterised by the furious dancing of the patients and a disposition to lay violent hands on themselves; also called enthusiasmus. (See CHOREA, EPIDEMIC INSANITY, &c.)

ANTHROPOMAGNETISM (*ἄνθρωπος*, a man; *magnetismus*, from *μάγνης*, a magnet, first found near the city of Magnesia—*Μαγνησία*). A synonym of Animal Magnetism. (See HYPNOTISM.)

ANTHROPOMETALLISM (*ἄνθρωπος*; *metallum*, a metal). Spindler's term for one of the principal forms of animal magnetism, that from which somnambulism, catalepsy, and other phenomena result from looking steadily at a metal disc. (See HYPNOTISM.)

ANTHROPOPHOBIA (*ἄνθρωπος*, a man; *φόβος*, fear). A fear or dread of man. Either the mental condition antithetic to Nymphomania, or a morbid desire for solitude. (Fr. *anthropophobie*; Ger. *Menschenscheu*.)

ANTICHIROTONOUS (*ἀντίχειρ*, the thumb; *τόνος*, contraction). A term applied to epileptics in whom the forcible or spasmodic inflection of the thumb is one of the precursory or predominant symptoms of an attack.

ANTICYRA.—Two towns of this name were celebrated for hellebore, the well-known remedy for insanity; one in Phocis, in a bay of the Crissæan Gulf; the other in Thessaly, on the river Sperchius. Hence the proverb, *Naviget Anticyram*, as advice respecting a crazy person. (See Juvenal, "Sat." vi. 619, xiii. 97; Horace, "Sat.," lib. ii. 3, 83, 166. "De Arte Poetica," 300; Pers. "Sat." 4, v. 16.)

ANTIFEBRIN (*acetanilide*; *phenylacetamide*). Extolled by Dujardin-Beaumont for its moderating influences on the cerebro-spinal centres, antifebrin has gained a chequered reputation in convulsive affections, particularly in epilepsy; found valuable by some, useless or even hurtful by others, it cannot claim to take the place of the bromides in general. Nor should it be continued if palpable benefit does not soon occur under its use. Some have found the milder form of epilepsy—vertiginous rather than convulsive—the more amenable to treatment by antifebrin, and there is some evidence against employing it in the more severe seizures—epileptiform, and perhaps with mental perversion—symptomatic of organic cerebral disease. In hystero-epilepsy, so-called, there is little to record in its favour, although in a few cases it is stated to have been of good effect in hysterical affections.

Neuralgic affections often yield to antifebrin. Patients with paroxysmal pain of various kinds—supra-orbital, sub-occipital and intercostal neuralgia—have derived great benefit; and some examples are reported of almost magical effect in malarial supra-orbital neuralgia, antifebrin thus rivalling quinine in this condition.

Sciatica often ceases under it. In headaches it has frequently proved useful, hemicrania especially, and "nervous headaches"; it has been strongly recommended in the forms of headache connected with local vessel-spasm or anæmia.

It has also been of good effect in lumbago and other rheumatic pain; and in acute rheumatism has sometimes been substituted for salicylate of soda when the latter has disagreeable results.

In *tabes dorsalis* it often exerts a good effect on the lancinating pains, gastric crises, headache, and formication.

But a derivative of antifebrin, namely methyl-acetanilide (*exalgine*), is a better analgesic agent, and that in small doses.

In insomnia, with high temperature, antifebrin may at times suffice, but we have far more efficacious and safer remedies as hypnotics for general use.

As a calmant in mental excitement it

sometimes succeeds, but better calming agents are at hand, and we have ceased to employ it for this effect.

As an antipyretic, it often controls the high temperature of fevers and of inflammation. It does so even in the inflammations occurring as complications of organic cerebral or spinal disease, as, *e.g.*, those occurring in general paralysis, where the effect of antifebrin upon the temperature is often very great.

In insane adult phthisical males—taking cases of acute and chronic phthisis somewhat collectively—antifebrin, in some instances, given in the morning, reduces a high morning temperature, and keeps it reduced during the evening, a decided effect lasting eight, ten, or more, hours. Yet, given in the morning, it may reduce the morning temperature, but not prevent an evening rise of temperature again, to the extent of one, two, or three degrees Fahrenheit. Given on a high morning or evening temperature, it may reduce the temperature four or five degrees, or much less, the effect passing off in four or six hours; and it best lowers the evening temperature-curve in the chart if given three or four hours previously. A late-morning, or midday, dose of antifebrin usually affects the temperature of the afternoon and evening more and longer in chronic than in acute phthisis.

As a rule, in chronic cases evening temperatures of 100° – 103° were soon reduced by antifebrin, and the patients had warm perspiration.

When the temperature in acute or chronic phthisis reaches an unusually high degree, the effect of ordinary doses of antifebrin in reducing temperature is less constant, and sometimes fails, although its effect in such cases is usually and often strikingly antipyretic. When the ordinary dose of antifebrin fails, a maximal dose (10 to 12 grains) often succeeds in a very decisive way (especially if associated with tepid sponging).

The effect of antifebrin in reducing temperature is usually marked in an hour or two, and continues from two to ten or more hours, according to the cases.

As a rule, the pulse and respiration are lowered in frequency simultaneously with the fall in temperature; but their usual slowing is apt to be less marked, proportionally, than the decrease of temperature, and in some instances the pulse is accelerated.

Three, four, or five grains are sufficient to begin with: only just so much must be administered, and with such frequency, as controls the rise in temperature. To feeble patients with far-advanced phthisis, or

cyanotic face and hands, the drug should not be given at all.

Bad Effects of the drug may be, failing pulse, cyanosis, prostration, collapse, excessive sweat, rigor, &c.;—or granulo-fatty change of liver and kidneys (from pharmaceutical impurities?) This powerful drug, potent for harm as well as good, should only be used with extreme care and in moderation.

W. J. MICKLE.

ANTIPATHIA (*ἀντιπάθεια*, aversion, dislike; from *ἀντι*, against; *πάθος*, suffering). Antipathy. An old term for an aversion to particular objects or things, with great restlessness or delirium. (Fr. *antipathie*; Ger. *Widerwille*, *Abneigung*.)

ANTIPATHIA INSENSILIS (*ἀντιπάθεια*; *insensilis*, insensible). Insensible antipathy; aversion produced through some unknown medium, as in the case of a person experiencing a kind of horror in the presence of some animal or object not perceptible to the senses.

ANTIPATHIA SENSILIS (*ἀντιπάθεια*; *sensilis*, sensible). Sensible antipathy; antipathy produced through the medium of the external senses—*e.g.*, odours, horrible sights, &c.

ANTIPRAXIA (*ἀντιπραξίς*, counteraction; from *ἀντι*, against; *πράσσω*, I perform). A term for a contrariety of functions existing at the same time in different parts of the body—*e.g.*, spasm of muscles of one limb and paralysis of those of another. (See **HYSTERIA**.)

ANTIPYRINE (*Dimethylorochinazine*, also called *Phenyl-dimethylpyrazolon*) was prepared in 1884 by Ludwig Knorr, and introduced into medicine by Filehne. It is a derivative of chinoline, and was first employed as an antipyretic, but of recent years it has been much more largely employed for its by-effects as an analgesic. As an antipyretic it must be given in 15-grain dose several times a day, or it may be given in 30-grain dose repeated twice at intervals of one hour (in all three doses), and then intermitted till the temperature again rise. Its disadvantages are that, even in the smaller 15-grain dose, it may cause much depression, amounting in some cases to collapse. Vomiting is troublesome in some cases; further, it sometimes causes the appearance of an erythematous rash resembling measles or urticaria. There is no evidence that antipyrine cuts short the duration of the disease. The dosage should not in the first instance exceed 15 grains, and even this dose has been followed by very uncomfortable symptoms (Guttman and others). In the treatment of painful affections—migraine, neuralgias, the pains of locomotor ataxy—a smaller dose is

generally efficient, 5–10 grains, three or four times a day, and in any case it is well not to exceed a 10-grain dose till the susceptibility of the patient has been gauged. It may be employed hypodermically in watery solution, either as an antipyretic or analgesic, the dose 5–10–15 grains, beginning, of course, with the lowest dose. Subcutaneous abscesses have sometimes followed the injections.

Biliary and renal colic, angina pectoris, the asthmatic paroxysm, are other affections which have been successfully treated by antipyrine. In all cases of prostration the exhibition of antipyrine must be carefully watched.

Antipyrine is freely soluble in water.

H. SAINSBURY.

ANTITHESIS (*ἀντίθεσις*, opposition, from *ἀντιτίθημι*, I set against). A term usually employed to signify a form of words in which the opposition of meaning conveyed is marked by the contrast of the words themselves. Darwin has used the word to denote one of the principles which explain the involuntary gestures and expressions used by man and other animals when under the influence of emotions. (Ger. *Gegensatz*.)

ANURIA, HYSTERICAL (*ἀν*, neg.; *οὔρον*, urine; *ὑστέρα*, the womb). (See **HYSTERICAL ANURIA**.)

ANXIETY (*ἄγχω*, I throttle, torture). Mental distress in expectation of some sorrow or trial. A condition of agitation and depression, with a sensation of tightness and distress in the præcordial region.

ANYPNIA (*ἀν*, neg.; *ὑπνος*, sleep). A synonym for Sleeplessness.

AOCHLESIA (*ἀοχλησία* from *ἀ* neg.; *ὄχλησις*, disturbance). Literally quiescence. A synonym of Catalepsy. (Ger. *Indolenz*.)

APANTHROPIA or **APANTHROPISMUS** (*ἀπανθρωπία*; *ἀπὸ*, away from; *ἄνθρωπος*, a man.) An old term used by Hippocrates, ("Coac.Prænot." t. 482) for a kind of melancholia, characterised by a dislike of the male sex: also termed exanthropia or exanthropy; apanthropy. Also used to denote inhumanity, cruelty. (Fr. *apanthropie*; Ger. *Trübsinn mit Menschenscheu*.)

APASTIA (*ἀπαστία*; from *ἀ*, neg.; *παρέομαι*, I feed). Abstinence from food as a symptom of mental disorder.

APATHETIC INSANITY (*ἀ*, neg.; *πάθος*, emotion; *ἦν*, neg.; *σῆσις*, sound). A form of insanity simulating dementia, but in which the memory is not wholly impaired, and the mind is in a state of torpor.

APATHY (*ἀ*, neg.; *πάθος*, suffering, affection). An absence of emotion or

desire; a want of feeling, privation of passion; insensibility, indifference. (Fr. *apathie*; Ger. *Unempfindlichkeit*.)

APHAGIA (*ἀ*, neg.; *φαγῆναι*, to eat. Inability to swallow. (Fr. *aphagie*.)

APHASIA (*ἀφασία*, speechlessness, from *ἀ*, neg.; *φῶσις*, speech). The partial or complete loss of the faculty of intelligent speech, not caused by structural impairment of the vocal organs, but by lesion of the cerebral centres for speech. It therefore includes: (1) the inability to speak due to affections of the co-ordinating centre for the articulatory muscles (*aphemia*); (2) the aphasia dependent on the loss of the memory of words (*amnesia*), and it may be attended by inability to write (*agraphia*) independently of paralysis of the muscles of the arm and hand. But it excludes speech imperfections, (*a*) where there is complete mental incapacity or loss of intellectual power, so that while the speech organs are perfect, and their centres may be intact, no ideas are originated in the mind, as in idiots; (*b*) where paresis or paralysis of the tongue, lips or palate exists, thus rendering the mechanical act of articulation difficult or impossible; the power of thought and also of expression, as evidenced by the ability to write sensibly, being in these cases perfectly natural, *e.g.*, in certain hemiplegic cases, in general paralysis, some cases of locomotor ataxy, chorea, &c. In aphasia, though the mental condition is more or less impaired, it is not to such a degree as to prevent the formation of ideas, but the patient cannot recollect words or their meanings and thus is unable to express his thoughts; he has lost the power of co-ordinating and arranging words in a proper manner for the purposes of articulate or written language. In all forms of aphasia, phonation, or the power of producing vocal sounds, is retained more or less, and is used in place of articulate speech. Aphasia is usually associated with right hemiplegia due to lesion in the left hemisphere in right-handed persons, but in those who are left-handed, even though the right hand be used in writing, the lesion, to induce aphasia, must be in the opposite hemisphere. The hemiplegia is frequently caused by embolism of some part of the middle cerebral artery, but it and the accompanying aphasia may also depend upon hæmorrhage, softening, cerebral tumour and other lesions. The disorders met with in most cases of aphasia may be referred to some lesion affecting specially the posterior third of the third frontal (or Broca's) convolution, the island of Reil, and the subjacent part of the corpus

striatum on the left side. When both sides are involved, that is to say, when a lesion affects Broca's convolutions in both hemispheres, paralysis of articulation may be observed together with the aphasia. Speech processes in the cerebral cortex are sensory and motor; by the former language is received, and by the latter it is uttered. Since similar structures exist in each hemisphere, if those on the left side are destroyed, the corresponding parts of the right hemisphere may take on the lost function, and the symptoms of the loss may pass away. The right hemisphere, moreover, probably takes some part in speech processes, and the part it takes varies in different persons, and at different periods of life. Loss of speech from lesion in the left hemisphere is, as a rule, quickly recovered from in children by the compensatory use of the right hemisphere; a similar recovery takes place in some adults more readily than in others, but in some it does not occur at all. The co-operation of the intact hemisphere in assuming the functions either partially or wholly in abeyance through the lesion in its fellow, probably occurs also when the damage is partial. Hence, we cannot be sure to what extent the speech processes that return are to be ascribed to the left hemisphere or to both. The sensory relations of speech are with hearing (*see* WORD-DEAFNESS) and sight (*see* WORD-BLINDNESS), and also in blind persons with touch. A form of aphasia called functional may be the result of fright, or emotion, or of general disease, *e.g.*, right-sided convulsions, migraine, typhoid fever, peripheral injury, &c. (Gowers, F. Roberts, &c.) Some authors include under the head of aphasia, defect or loss of speech from whatever cause. (Fr. *aphasie*; Ger. *Sprachlosigkeit*.) (*See* POST-APOPLECTIC INSANITY.)

APHASIA AMNEMONICA (*ἀφασία*; *ἀμνημονέω*, I am unmindful of); **APHASIA AMNESICA** (*ἀφασία*; *ἀμνησία*, forgetfulness); **APHASIA AMNESTICA** (*ἀφασία*; *ἀμνησία*). Terms denoting aphasia in which neither spoken nor written words can be remembered. The idea is present but does not suggest the proper symbol, hence no word, or in its place an incorrect expression, is employed. The appropriate word to express an idea cannot be recalled when required, though it is readily pronounced when heard.

APHASIA, ANEURAL (*ἀφασία*; *ἀ*, neg.; *νεῦρον*, a nerve); **APHASIA ASSOCIATORIA** (*ἀφασία*; *associio*, I associate). Terms used as synonyms of Atactic or Ataxic Aphasia.

APHASIA ATACTICA (*ἀφασία*; *ἀ*, neg.; *τάξις*, order); **APHASIA ATAXIC** (*ἀφασία*; *ἀ*, *τάξις*.) A term originally employed by Sanders to denote the aphasia following destruction of the motor speech region. If the loss is old or partial, words are often wrongly formed, hence the term. As Gowers, however, points out, this as a distinctive term is inexact, since a very similar disorder of words may arise from pure word-deafness. Power and Sedgwick define atactic aphasia in these terms: The condition of aphasia in which a word, though still retained as a sensory image, and as a symbol of thought, can no longer be enunciated as a motor combination of articulate sounds, though the sounds themselves may continue to be correctly formed when occurring in some other word. (See MOTOR APHASIA.)

APHASIA, FUNCTIONAL (*ἀφασία*; *fungor*, I perform). A form of aphasia which may occur in hysterical persons as a result of great emotion, or of severe febrile or other diseases, or as a congenital condition. It is not associated with hemiplegia, does not appear to be accompanied by manifest cortical lesion, and is readily recovered from.

APHASIA, LETHOLOGICAL (*ἀφασία*; *λήθη*, a forgetting; *λόγος*, a word). A synonym of Aphasia Amnesica.

APHASIA, MOTOR (*ἀφασία*; *moveo*, I move). A term originally used by Wernicke to denote the speech symptoms following destruction of the motor speech region. The patient is at first speechless, and even expressions by signs may be impaired. Before long, expression by gestures becomes accurate, and the patient regains the power of uttering a few simple words, and often other words are at times uttered under the influence of some emotion, or some word may be repeated on every attempt to speak. The patient is able to understand whatever is said to him, but cannot repeat it, he cannot read aloud, and is generally unable to understand seen words (alexia), he cannot write even if his hand is unaffected (agraphia). Processes of thought are little interfered with, and the patient is cognizant of his errors in utterance. Recovery proceeds by the re-education of the opposite hemisphere. The loss of speech is due to the lesion, the erroneous utterance of words to the imperfect action of the opposite speech centres only when the lesion is complete, or of both when incomplete. The powers of expression may be: (a) by gesture, at first impaired but soon afterwards regained; (b) some general propositional utterance which may be at

first used wrongly; (c) some special "recurring utterances" (Hughlings Jackson); (d) combinations of words expressive of strong emotion — "dead propositions" (Hughlings Jackson); (e) words as the vehicles for tone in singing. (Gowers.)

APHASIA, SENSORY (*ἀφασία*; *sensus*, sensible). A synonym of Word-deafness, a series of phenomena due to lesion of the first temporal convolution. (See WORD-DEAFNESS.)

APHELXIA (*ἀφέλκω*; I draw away). Term for absence of mind, reverie. (Ger. *Zerstreuungheit*.)

APHELXIA INTENTA (*ἀφέλκω*; *intentus*, intense). Abstraction of the mind in which the attention at the instigation of the will is riveted to some special subject, with consentient tension of the general expression.

APHELXIA OTIOSA (*ἀφέλκω*; *otiosus*, unoccupied). The condition known as "brown-study," in which the attention is voluntarily obedient to the imagination; the muscles are quiescent.

APHELXIA SOCORS (*ἀφέλκω*; *socors*, narrow-minded, thoughtless). Absence of mind in which the attention wanders, and does not readily yield obedience to the will.

APHEMIA (*ἀ*, neg.; *φημί*, I speak.) A term originally employed by Broca for the condition at present known as aphasia. By some authors it is still used synonymously with it in its widest sense; by others, and especially Bastian, it is restricted to those cases in which the patient is completely speechless even after having regained the use of every other faculty which has any relation to speech. He is able to write and retains all his mental faculties, while there is no paralysis of the articulatory muscles, for these can be used perfectly for all other movements. Aphemia has been observed after epileptic or apopleptic fits. (Fr. *aphémie*.)

APHILANTHROPIA (*ἀ*, neg.; *φιλανθρωπία*, love of mankind). An old term used by Wedelius for the first symptoms of melancholia, consisting in a shunning of society and amusements. (Fr. *aphilanthropie*; Ger. *Menschenscheu*.)

APHONIA and **APHONY** (*ἀ*, neg.; *φωνή*, the voice). A term for inability to speak, loss of voice or the power of phonation due to paralysis or imperfect approximation of the vocal cords, and may be of functional or organic origin. Also a synonym of Catalepsy. (Fr. *aphonie*; Ger. *Stimmlosigkeit*.)

APHONIA, HYSTERICAL (*ἀ*; *φωνή*; *ιστέρα*, the womb). Loss of phonation without any notable central or local lesion in

the larynx, occurring in hysterical persons. The patient always speaks in a whisper; sometimes this is merely voluntary, as when general hyperæsthesia exists, and the sound of the voice distresses the patient, who habitually whispers though perfectly able to phonate; more generally actual inability to utter vocal sounds exists, when laryngoscopic examination reveals non-approximation of the vocal cords during attempted phonation. The glottis can usually be closed for coughing, and in some cases patients can sing well and speak in a loud voice during sleep, although ordinary voluntary speech is whispered. Strong faradaism or emotion may produce a scream, or may effectually restore phonation. Hysterical aphonia may come on spontaneously, but is frequently excited by emotion or laryngeal catarrh. Its duration is variable and prone to relapse. In rare cases the tongue shares the laryngeal inaction, and loss of articulation is added to that of phonation. (See art. HYSTERIA.)

APHONIA SURDORUM (*ἀ*; *φωνή*; *surdus*, deaf). The dumbness of a deaf mute. (See DEAF-MUTISM.)

APHORIA IMPERCITA (*ἀφορία*, from *ἀ*, neg.; *φορέω* for *φέρω*, I bear; *im*, neg.; *percito*, I excite thoroughly). Barrenness produced by personal aversion, or want of appetency.

APHRENOUS (*ἀφραίνω*, I am deranged). Insane, having lost reason.

APHRASIA (*ἀ* neg.; *φράζω*, I speak). Broca's term for Aphasia. (Fr. *aphrasie*.)

APHRASIA PARANOICA (*ἀ*; *φράζω*; *παράνοια*, folly). A term applied to lunatics, who, after remaining persistently dumb for a long period, suddenly begin to speak.

APHRENIA (*ἀ* neg.; *φρήν*, the mind). Moral and intellectual obliteration. A synonym of Dementia. (Guislain.)

APHRODISIA (*Ἀφροδίτη*, Venus). A term for the morbid intemperate desire of venery.

APHRODISIA PHRENITICA (*ἀφροδίσιος*; *φρήν*, the mind). A term for insanity due to sexual causes or to love.

APHROSYNE (*ἀφροσύνη*, folly). An old term for the state now termed amentia or idiocy; also used to denote folly or delirium. (Fr. *Aphrosyne*; Ger. *Wahnsinn*.)

APHTHENXIA or **APHTHENXIS** (*ἀφθεγκτέω*, I am speechless). Loss of the faculty of speech from central nervous disturbance.

APHTHONGIA (*ἀ*, neg.; *φθόγγος*, a clear sound). A reflex aphasia, occurring but rarely, in which at every attempt to speak spasm of the muscles supplied by the

hypoglossal nerve ensues, thus rendering speaking impossible. (See HYSTERIA.)

APLESTIA (*ἀπληστία*, insatiate desire). An old term used by Galen for morbid insatiability or greediness.

APOCARTERESIS (*ἀποκαρτέρησις*, want of fortitude; from *ἀποκαρτερέω*, I sink under difficulties). Suicide by hunger or starvation.

APOCLEISIS (*ἀποκλείω*, I shut out). An absence of desire for, or a disgust for food.

APOGEUSIS or **APOGEUSTIA** (*ἀπογεύομαι*, I taste). An old term for loss or disorder of taste. (Fr. *apogeusie*.)

APOMATHEMA (*ἀπομάθημα*, from *ἀπομανθάνω*, I forget). Loss of memory.

APOPLEXIA CATALEPTICA (*ἀποπληξία*, from *ἀπο*, πλήσσω, I cripple by a stroke; *κατάληψις*, a grasping, catalepsy). A synonym of Catalepsy.

APOPLEXY and **INSANITY**. (See POST-APOPLECTIC INSANITY, PATHOLOGY, and TESTAMENTARY CAPACITY.)

APOPNIXIS (*ἀποπνίγω*, I strangle). A term used by Moschion ("De Morb. Mul." c. 127) with the epithet *τῆς μήτρας*, for *globus hystericus*.

APOSITIA (*ἀπο*, from; *σίτος*, food). An old term used by Galen for loathing of food, due to mental causes. (Fr. *apositie*; Ger. *Widerwillen für Speisen*.)

APPERCEPTION or **APERCEPTION** (*ad*, to; *percipio*, I perceive). An effort of the mind by which it considers itself as the subject which perceives or feels any impression. The term is used to designate perception conjoined with distinct consciousness or reflection; perception being the internal condition of the mind representing external things while apperception is the reflexive knowledge of this internal state (Leibnitz). Our various representations, the intentions or different impressions made upon our sensibility, would not exist for us without another element which gives them unity and makes them an object of understanding. This element, which we express by the term "I think," is apperception (Kant). Empirical apperception is the faculty exerted on the impressions received by the sensory nerves; pure apperception, when directed to the processes of thought without external excitation. Immediate internal apperception is Maine de Beron's term for conscience (Fr. *apperception*; Ger. *Anscharung, Auffassung*.)

APPETENCE or **APPETENCY** (*appeto*, I desire). An instinctive desire leading to the fulfilment or gratification of a natural function. The natural desire of organised beings to obtain sustenance. (Fr. *appétence*; Ger. *Naturtrieb*.)

APPETITE, DEPRAVED (*appeto*; *depravo*, I vitiate). A synonym of *Pica*. (Fr. *appétit dépravé*.)

APPETITE, INSATIABLE (*appeto*; *in*, neg. *satis*, enough). Another term for *Bulimia*.

APPETITE, MORBID (*appeto*; *morbis*, a disease). Any deviation from the natural appetite caused by a diseased or perverted condition of the nervous system or of the digestive organs. (See *BULIMIA*, *BUPEINA*, *CYNOREXIA*, *PICA*, &c.)

APPREHENSIO (*apprehendo*, I take hold). A term used by P. Zacchias ("Quæst. Medico-leg." ii. i. q. 15, n. 9, 10) for *Catalepsy*.

APPRENTICES.—In the event of either party to a contract of apprenticeship becoming incapacitated by insanity from performing his duties under the articles, it seems that the Court would, on the analogy of the relief which it gives in cases of partnership (*q.v.*), dissolve the relationship: *cf.* Pope, "Lunacy," p. 341. In one case (*Ex parte Turner*, 10 L. J. N. S. Q. B. 356), in which a solicitor to whom a clerk had been articled, became insane during the clerkship, the Court discharged the articles without any assignment, and allowed the clerk to enter into fresh articles for the remainder of his term of service. The interval between the incapacity of the master and the completion of the new contract was not, however, allowed to be counted as part of the requisite period of service.

It seems that justices may discharge a parish apprentice who becomes insane, "it being hard the master should keep one who could do him no service, and the parish in the meantime go free:" 1 Skin. 114.

A. WOOD RENTON.

APRAXIA (*á*, neg.; *πράξις*, a doing). A loss of the knowledge of the use of things, the mistaking of objects.

APROSEXIA (*á*, neg.; *προσέχειν*, to adhere to). Inability to fix the attention upon a subject, due to overstudy. Also more recently applied to the incapacity of paying attention, accompanying chronic nasal obstruction.

APSELAPHESIA (*á*, neg.; *ψηλαφάω*, I handle or feel). Loss or diminution of the sense of touch, and of the painful sensations produced by burning, with retention of sensations of pinching, pricking and cutting. (See *HYSTERIA*.)

APSITHURIA (*á*, neg.; *ψιθυρίζω*, I whisper). Incapability of whispering. A term suggested by Cohen. The patient, who is usually hysterical, is unable to produce the faintest audible sound. It is generally accompanied by double functional paralysis of the vocal cords, but

there is no paralysis of the tongue, lips, or expiratory muscles. (See *HYSTERIA*.)

ARACHNOID CYSTS. (See *PACHYMENINGITIS*.)

ARBITRATOR (*Insane*).—It is laid down by several old authorities,* that an idiot or a lunatic cannot be an arbitrator. Then the opinion was expressed that disability of any kind in the person chosen, known to both parties at the time of the appointment, is no ground for setting aside an award, for the parties chose their own tribunal, and agreed to abide by its decision: *cf.* Russell's "Power and Duty of an Arbitrator," p. 115, Redman's "Law of Arbitrations," 2nd edit., p. 89. *Huntig v. Ralling*, 8 Dowl. 879. *Ashton v. Poynter*, 3 Dowl. 201. A lunatic will now perhaps be incapable of acting (under the Arbitration Act, 1889, sec. 5 (b)).

A. WOOD RENTON.

ARC EN CERCLE, or ARC EN CERCLE LATERALE. (See *HYSTERIA*, *HYSTERO-EPILEPSY*, &c.)

ARITHMOMANIA (*ἀριθμός*, a number; *μανία*, madness). A morbid desire for counting or making calculations. (Fr. *arithmomanie*.)

ARREPTIO (*arripio*, I seize). A term for any form of insanity.

ARTHRALGIA HYSTERICA (*ἄρθρον*, a joint; *ἄλγος*, pain; *ὑστέρα*, the womb). Hysterical joint-pain. Pain in a joint generally accompanied with cutaneous hyperæsthesia and sometimes swelling, occurring in hysterical subjects.

ARTHRITIC INSANITY (*ἀρθρίτης*, gout or rheumatism; *in*, neg.; *sanus*, sound). A name given to certain cases of insanity in which rheumatism or gout is supposed to be the cause of the mental disturbance. (See *GOUT* and *INSANITY*.)

ARTHROPATHIA HYSTERICA (*ἄρθρον*, a joint; *πάθος*, an affection; *ὑστέρα*, the womb). Painfulness of a joint without apparent organic change occurring in hysterical persons.

ASAPHIA (*ἀσάφεια*, from *á*, neg. and *σαφής*, clear). An old term for indistinctness of voice, whether due to defect of speech or nervous disease; also muttering, or a state of partial delirium. (Fr. *asaphie*; Ger. *Undeutlichkeit*.)

ASEMASIA (*á*, neg.; *σημαίνω*, I show by a sign). A term proposed by Dr. Hamilton as a substitute for *aphasia*, which he objects to as too limited in meaning, and as confining the view to speech defects, to the exclusion of loss of power of gesticulation (*amimia*) of singing, of reading (*alexia*), and of writing (*agraphia*), which are frequently associated with *aphasia*.

* *Cf.* Com Dig. Art. C

ASEMIA (*á*, neg.; *σήμα*, a sign). A term suggested by Steinthal to indicate loss of the power of forming or of understanding any sign or symbol of thought whether spoken, written, or acted.

ASEMIA GRAPHICA (*á*; *σήμα*; *γραφικός*, belonging to writing). Loss of the power of forming or of understanding writing. (See *AGRAPHIA*.)

ASEMIA MIMICA (*á*; *σήμα*; *μικτός*, from *μίμος*, a buffoon or mimic). Loss of the power of forming or of understanding thought expressed by gestures.

ASEMIA VERBALIS (*á*; *σήμα*; *verbalis*, pertaining to words). Loss of the power of speaking or of understanding speech. (See *APHASIA*.)

ASSOCIATION (*associatio*; from *ad*, to; and *socius*, a companion). As a special term, commonly employed in mental philosophy and psychology to denote the connection existing in the mind between impressions which have previously co-existed, or which are similar. Any idea tends to bring into the mind its associated ideas, in accordance with the two great laws of association, the law of contiguity and the law of similarity.

ASSOCIATION, MEDICO-PSYCHOLOGICAL. (See *MEDICO-PSYCHOLOGICAL*.)

ASTHENIA DEGLUTITIONIS (*ἀσθένεια*, from *á*, neg.; *σθένος*, strength; *deglutio*, I swallow). Difficulty of swallowing due to incomplete paralysis of the pharynx and oesophagus. (See *GENERAL PARALYSIS*.)

ASTHMA and INSANITY.—Some forms of asthma are of neurotic origin, and there are connecting links between some forms of hypochondriasis and asthma. We have seen many cases, in young women especially, with difficulty of breathing at recurring periods, associated with a feeling of strangulation and obstruction at the throat. These cases being but exaggerations of the globus hystericus. The exaggeration may go any length, so that the feeling may in the end be provided with an insane interpretation. In some of these cases the aspect is that of patients suffering from spasmodic asthma. We have known complaints of real obstruction, with fancies that some one or other was causing the distress by their machinations; that, in fact, the patient was being acted upon or influenced by others.

There are other considerations which need to be made in relationship to asthma and its neurotic relations.

Some cases of spasmodic asthma occur in highly neurotic families, or in persons who, from one cause or another, have become nervously unstable.

Hay Asthma in many respects differs from other forms of asthma, but when studied from the neurotic standpoint, it is seen to be not far distant. First, in our experience, hay asthma is common in members of neurotic families; it occurs in persons who, from one cause or another, are nervously unstable. Thus, we have met with it as a sign of increasing senile nervous weakness, and also in persons who from time to time have suffered from other forms of nervous instability.

Again, we have known it alternate with other forms of neurosis. We have seen a patient who was a martyr to hay asthma pass through Spring with physical comfort while she was mentally depressed.

We have known a man who had suffered regularly every year from hay asthma to be free from this complaint as soon as the symptoms of general paralysis of the insane appeared.

Hay asthma, then, is common among the neurotic. It may appear for the first time in persons who have become nervously weak, and it may alternate with other neuroses.

Spasmodic asthma in the same way may occur in insane persons. It is not uncommon in families where other neuroses have occurred, and it may alternate with other neuroses. The last cases are the most interesting. A patient who has been completely invalided in consequence of spasmodic asthma suddenly loses the difficulty of breathing, and at the same time becomes insane. The insanity may be of the maniacal type, it may be associated with delusions, or it may be melancholic. The period of true insanity is variable, but almost always passes off as suddenly as it came on, leaving the patient again a prey to the asthma. These alternations may recur, but in our experience it is not common for many recurrences to occur. The asthma seems to be unaffected by the insanity, and the insanity by the asthma. They each run independent courses.

It is noteworthy that not only asthma, but other disorders which may have a gouty origin, may alternate in the same way. (See *ALTERNATION OF NEUROSES*.)

It is also worthy of remark that, besides asthma being relieved by nervous storms, chronic bronchitis may also disappear in the same way. We have met with several elderly women who, having been subject to winter cough for years, when they became insane—generally melancholic—ceased to be troubled by the cough. This may, of course, be looked upon as only another example of the cases in which

physical signs are masked by the insensibility which may arise in insanity.

GEO. H. SAVAGE.

ASYLUM (*à*, neg.; *συλάω*, I pillage). Place safe from violence or pillage. The ancients set apart certain places of refuge where the vilest criminals were protected, and the name, later on, got to be applied specially to an institution which afforded a place of refuge or safety for the infirm or unsound of mind. (Fr. *asile d'aliénés*; Ger. *Irrenanstalt*.)

ASYLUM—EAR. (See art. *HÆMATOMA AURIS*.)

ASYLUMS.—CONSTRUCTION.—It is only possible within the narrow limits imposed by the design of this work, to briefly indicate the most important principles of construction, and to refer to existing authorities for fuller information.

1. **The fundamental idea** in the construction of modern asylums is the true welfare—the cure of the patients. No doubt considerations of safety must mould the architectural plan to a great extent, but the dominant conception emphasises the hospital and sinks the prison. It is now fully recognised that mental impressions caused by surroundings are most efficacious for good or evil in the treatment of the insane. It, therefore, becomes necessary for the asylum physician to provide a home-like, bright and interesting environment, if not for the cure, at least for the amelioration of his patients. It is also characteristic of the newer asylums that a variety of accommodation is provided. Distinctive classification is carried so far that separate blocks or buildings are specially designed for the kind of patients they are to receive. Thus, the separate houses found so useful and appropriate in dealing with orderly patients of the higher class may present features of domestic architecture in conformity with their situation; while pavilions for the reception of acute and difficult cases will be found specially planned for observation, safety and active medical treatment. These two classes represent the extremes of lunacy from this point of view—on the one hand, those for whom a home is sufficient; and, on the other hand, those requiring the whole apparatus of hospital treatment. Between these extremes is the vast proportion of the insane as found in asylums; and the buildings required for their accommodation may consist of the simple structure of large halls sufficing for the inmates of the wards for workers; or of the smaller, separate day-rooms, and rows of single rooms required for noisy and excited patients. There can be no doubt that contentment and

comfort are fostered where a patient can be changed from one kind of ward to another, or from one set of surroundings to another; and it certainly tends to promote cure when different phases of mental disorders can be treated in this way.

Such an “adaptation of the various parts of the house to the varied needs and mental states of its inhabitants” (Clouston) is characteristic of the best modern asylums; but the general arrangements should not depart from the principles of domestic architecture to a greater extent than is demanded by the necessity for appropriate treatment. Institutional features should be minimised, even where it is necessary to retain essential asylum arrangements for the worst class of patients. Moreover, such essential arrangements should only be used for those actually requiring them.

The more complicated structure of modern asylums, with their ample furnishings and air of cheerful freedom, means an entire change in methods of treatment. Skilled attendants and nurses take the place of warders whose power lay in their keys; there is as little as possible to remind the insane that they are sojourners in a strange dwelling.

It is still necessary to insist on the importance of good workmanship and good material applied to sound constructive design; and to urge the necessity of suitable provision for the comfort and well-being of the staff.

In fine, if the plan of an asylum is in accordance with the results of the best and latest medical experience, it will be a true hospital for mind and body, and not a bare house of penal detention.

2. **Site.**—In selecting a site for an asylum, an elevated yet sheltered position with a fall to the south should be sought. If that be done, the effects of a clay subsoil will be minimised, the disposal of sewage will be facilitated, and the aspect of the asylum, which should be towards the south-east, will be easily arranged to the best advantage. The position should be in proximity to a large town (not more than three or four miles distant), in order that there may be facility of access—for patients, staff and visitors, as well as for supplies of stores, gas and water. It is imperative that an ample source of water be assured before the site is fixed—in quantity, forty gallons a day for each person resident, calculated on the greatest possible numbers. Privacy and amenity must be primary considerations, and the extent of ground desirable may be stated at not less than one acre to four patients.

3. **Plan.**—Assuming that the asylum is to be used for the reception of acute and chronic patients, as is generally the case in this country, and that accommodation for six hundred patients be regarded as the maximum number to be treated, a combination of the various systems of construction will afford the best results. The impress left by the earliest asylums (disused monasteries, &c.) remains in the *corridor* or ward form. In seeking to assimilate asylum to home-like surroundings the *house* form was evolved, and with still greater sanitary and medical experience the *block* or pavilion form, which idea again is still further developed in the *cottage*. In the earlier books on asylum construction some classification of the general plans was attempted; but varieties are now so complicated that detailed description is necessary to make each understood.

At first the *corridor* form resulted in a linear style —, and modifications or enlargements led to the H style, or the quadrangle, \square . Radiating linear forms from an administrative centre were tried, \swarrow and soon abandoned. The corridor form is still in use where troublesome cases are to be treated, and if combined with ample day-rooms at the ends, bay windows at intervals, and single rooms along one side only, it is not likely to be superseded for this purpose.

Of late years these corridors, instead of being arranged in linear or — form, have been placed in *échelon*. The highest development of this style has been reached in the Buffalo State Asylum (U.S.A.), the plans of which are worthy of minute study. The leading ideas of this method of construction are to obtain the full benefit of the sun in its daily course, to minimise the danger of fire, to favour free ventilation, to admit of easier and distinctive classification, and to lessen the effect of noise occurring in certain wards. The objections to the rear wards of the H and \square plans are manifestly that they obtain a minimum of light, and are apt to be overlooked by all approaching the institution—if the south front is reserved, as it should be, for the exclusive use of the patients.


A typical asylum of recent construction presenting the best features of the \square plan is the Hull Borough Asylum. There the wards are arranged round the outside of the square with the administrative buildings forming an intervening block in the centre,



\square . This adds to the former objections a difficulty in obtaining a free circulation of air; and the contained airing courts do not fulfil the primary conditions of cheerfulness, interest, and general amenity.

The *pavilion* form has been proved by experience the most suitable for this country. One of the earliest was the Surrey County Asylum at Brookwood, and the same architect, after further experience in Berkshire and the East Riding of Yorkshire, is now completing the ultimate development of his ideas at Cane Hill, near Croydon. The *échelon* form in this well-planned important institution is obtained by grouping pavilions as radii round a semi-circular corridor with its convexity towards the south-east. These pavilions are of the most diverse form and internal construction, alternately high and low, long and short; and are designed with special knowledge of the medical requirements in regard to treatment. Every style of ward is represented in due proportion to the normal classification of patients—the simplest house-form containing one vast room for the chronic general cases; the corridor form, with day-room at each end, and a large number of single rooms, for the acute; and specially troublesome; and the more complicated infirmary for the treatment of the sick and feeble. In the centre of the semi-circular space are a few wards, and the administrative buildings—from the medical officers' apartments in front, ranging to the chapel, amusement-room, kitchen, laundry, and stores, to the workshops and mortuary behind.

The *cottage* form was in use many years ago in the Devon County Asylum, and it has been developed of late years with marked success, especially at Alt-Scherbitz, near Leipzig. That institution consists of some thirty separate villas or cottages, scattered over an estate of seven hundred acres. It is a well-wooded and undulating piece of ground on the banks of a river. But, although a high road passes through it, so well are the arrangements made and so happy is the general effect that the casual passer-by may be totally unconscious that he is walking through the midst of an asylum for six hundred patients. The segregation of the noisy, and the classification of the patients generally, are admirably attained.* Gabersee, near Munich, is also a recent asylum, built on this principle and well

* The writer and the editor can speak with confidence of this asylum, under the management of Dr. Paetz, from a recent careful inspection.

worthy of study. The large asylum of Kankakee, Illinois, was among the first to show the plan of segregation, and has largely influenced subsequent asylum construction. Objections to such a plan must inevitably occur, the detached blocks may seem difficult to supervise, and the associated amusements in winter may be conducted under disadvantages. The central kitchen is a hundred and fifty yards from some cottages, and dinners sent round in a van may not be palatable in mid-winter.* A plan presenting many features of excellence has been recently carried out at the St. Lawrence State Asylum, where the blocks or cottages are arranged in *échelon*, and connected by covered ways. At the new French asylum, Villejuif, the pavilions are set one behind another, with connecting passages open to the elements; and a similar plan on a smaller scale has been adopted in Basle, but without any covered ways. The extensive asylum at Pontiac (U.S.A.) shows a similar design; and the New Craig House division (for middle-class patients) of the Royal Edinburgh Asylum, is being erected on this plan. The central block  for acute

and troublesome cases, contains the administration buildings. Succursal to it are villas for the sick and infirm, and the convalescent. Some of these are connected by corridors of glass and wood; others are entirely separate. At the Royal Manchester Asylum (also for middle-class patients) Mr. Mould has carried this separate treatment to its ultimate logical conclusion. Houses of every kind, at the most various distances, are used as adjuncts to the central hospital, which is of the old  form. The admirable design of the additions to Barnwood House Asylum, on the linear principle, with the extreme wings curving to the south, shows adaptations of the corridor and house forms, insuring amenity for the quieter classes. As an hospital for one hundred acute cases, in the  form, the new building of the Montrose Royal Asylum will repay study.

It is not possible to refer here in detail to the great asylums at Whittingham in Lancashire, and Menston in Yorkshire, where the pavilion plan has been adopted, with but moderate success. Sufficient has been said to indicate the broad

principles on which architects have proceeded.

4. **Water.**—The importance of an adequate and pure supply of water has been already referred to. Ample storage and constant pressure on the mains are points of moment. At such asylums as have in use the earth closet system—*e.g.*, Prestwich, Manchester—which requires daily and scrupulous care and attention, the expense of the water system is greatly reduced. But it is of prime importance that the hydrants for the extinction of fire should be numerous and accessible. Modern asylum construction, usually limited to two stories, insures alternative exits, at certain intervals fire-proof partitions carried through the roof, if not fire-proof flooring—wide and easy fire-proof staircases if not fire-proof doors. The best protection against the danger of fire is a well-organised fire-brigade, with all the modern appliances of fire-engines and fire-alarms. As the older ideas of restraint have been replaced by educated attendance, so the older ideas of fire-proof vaulting have given place to constant supervision, and skilled methods of fire-extinction.

Baths and lavatories are now generally to be found in all the wards or pavilions of the asylums of this country. On the Continent, general bathrooms, elaborately fitted up, are more common, and they are often in immediate proximity to the wards for excited patients. A complete set of baths for medical purposes should find a place in every asylum; and in hospital wards the baths should be portable.

5. **Drains.**—The drainage system ought to be planned and constructed under the supervision and inspection of a sanitary engineer. The possibility of sewer-gas entering the asylum by closets, lavatories or baths ought to be guarded against. Where soil pipes emerge from the wards for destructive patients, there should be a cage to retain such articles as may be mischievously forced down the drain.

The disposal of the sewage is now generally planned for irrigation of the farm lands at some distance from the asylum.

The proportion of baths, lavatory basins, and water-closets to patients, may be stated at 1 to 20, 1 to 10, and 1 to 15 respectively.

Every pipe should be visible at a moment's notice, and it is convenient to have complicated ramifications painted distinctive colours.

6. **Heating.**—Modern asylums in this country are generally heated with hot-water at low pressure, in addition to open fires. But steam at low pressure

* Dr. Dewey has successfully introduced food-cars of galvanised iron, closed tightly, and surrounded with an air-chamber, through which a stove under the car circulates a current of hot air.—Ed.

possesses advantages, when the buildings have not been specially designed for the water system. Hot-air is now almost entirely abandoned, and the open fires in use in most asylums are not deemed sufficient if unaided. Coils are not so likely to insure an equable distribution of heat as a continuous pipe round the skirting of the outer wall.

7. **Lighting.**—By day and by night the day-rooms of an asylum should be bright and cheerful. The windows must occupy not less than one-sixth of the whole wall space. They should be of ample size, carried nearly to the roof, and reaching within two or three feet from the floor. The sashes are now generally made of wood, with panes not less than six inches by twelve. In many cases they are made much larger, with manifest advantages. Usually, the sashes open at top and bottom to the extent of four or five inches, and it is an improvement if the check is made by means of a lock in the window-frame. In special wards, the upper sash may be made to open inwards by a screw motion, independent of patients or the action of the wind. The best form of shutter rises from below in one piece, and may be locked at any required height. Hangings and blinds fitted to windows give an air of comfort, altogether denied to bare recesses and black blank outlook. Artificial lighting is now obtained by means of gas or electricity. Coal gas is usually made in the institution or supplied from the nearest town. At the Tournai Asylum, the gas-house is underneath the kitchen, and the heat from the retorts is utilized for cooking. Electricity has been installed in a few asylums (at Exeter, Glasgow, and Montrose), but it is doubtful if the system is yet sufficiently developed for practical purposes. The storage of electricity in an economical and efficient manner has not yet been perfected. In any case, the pipes or wires for conveying light should be accessible, and yet secure from interference on the part of patients.

8. **Ventilation.**—Every apartment occupied by patients should be above ground, and should communicate directly, through its windows, with the external air and light. The floors should be of wood, and ventilated underneath, unless hard-wood blocks fixed in cement are laid. The foundations and the ground surface should invariably be covered with a waterproof and vermin-proof coating of asphalt.

In this country, Broadmoor Criminal Asylum is the only institution of the kind fitted with forced ventilation. In the basement, a fan propels the air into the ducts.

Simpler methods are commonly in use. Perhaps the best is to introduce fresh air by gratings near the floor, and to extract the vitiated air from the roof by separate outlets. This system may be improved by utilising gas and steam as adjuvants. The cubic space per patient may vary from eight hundred to fifteen hundred feet in single rooms, as the patient may be in good health, or in infirmary or special ward. But in associated dormitories and day-rooms, these proportions fall to six hundred and sixty, and three hundred and thirty feet respectively. The proportion of single rooms desirable is probably about one to six patients.

9. **Classification.**—It is now generally admitted that individualised treatment of insanity is of the greatest importance, and that remedial influences are lessened by massing together large numbers of the insane. There can, and ought to be, no invariable asylum model. Each locality must have its own special requirements; but, in calculating the space for different classes of patients, it may be stated that at least twelve wards would be required for a mixed asylum of six hundred cases. The sick and infirm (probably amounting to 10 per cent.), the recently admitted cases (also 10 per cent.), the convalescent, the epileptics and idiots, the violent and the general classes of patients will each require separate provision in a well-ordered asylum.

The kitchen, dining-rooms, stores, workshops, laundry, chapel, mortuary, amusement-room, and library, are all important parts of an asylum. But it is impossible to enter into details regarding them, or to make further reference to the necessity of properly accommodating the staff. The arrangements at Prestwich, Manchester, may be indicated as most complete in this respect.

[The authorities on this subject are mostly of little value in regard to recent buildings. Parchappe, Jacobi, Conolly, Kirkbride, Browne, refer to asylums now regarded as old fashioned. Even the authoritative Report of Dr. Norton Manning is dated twenty-two years ago. See also Bibliography at end of Dictionary.]

A. R. URQUHART.

ASYMBOLIA (*á*, neg.; *σύμβολον*, a sign). A term suggested by Finkelnburg as being more comprehensive than aphasia, to denote loss of power of forming or comprehending any sign or symbol of thought, whether spoken, written, or acted.

ASYNESIA (*á*, neg.; *σύνεσις*, lit. a meeting; soundness of intellect). Want of intelligence; stupidity. (Fr. *asynésie*; Ger. *Dummheit*. *Einsichtslosigkeit*.)

ASYNESIS (*ἀ, neg. ; σύνεσις*). A word used as a synonym of Aphasia.

ASYNETOUS (*ἀσύνητος*, void of understanding). Stupid, foolish. (Ger. *Dumm-einsichtlos*.)

ATACTIC (*ἄτακτος*, out of order, irregular). A term usually applied to the want of co-ordination or irregularity of muscular action. Also, according to one interpretation, to the aphasic condition in which there appears to be want of co-ordination in the muscles of articulation.

ATACTICALLY APHASIC (*ἄτακτος*, out of order ; *ἀφασία*, speechlessness). A term applied by Küssmaul to one who is able to form the sounds and syllables of familiar words, but who is unable to regroup these sounds and syllables in any other unfamiliar way.

ATARAXIA (*ἀταραξία*, tranquillity). Freedom from passion, calmness. (Ger. *Geistesruhe*.)

ATAVISM. (See HEREDITY.)

ATAXIA SPIRITUUM (*ἀταξία*, disorder ; *spiritus*, the mind). A synonym of Nervous Diathesis.

ATAKOPHEMIA (*ἀταξία*, disorder ; *φημί*, I speak). Defective co-ordination of words. Used sometimes as a synonym of Atactic Aphasia ; also as a synonym of Incoherence.

ATAXY, HYSTERICAL (*ἀταξία*, disorder ; *ὑστέρα*, the womb). Hysterical simulation of true progressive ataxy. There are many forms of hysterical ataxy, and they may exist alone or combined with hysterical paraplegia, hemiplegia, or monoplegia. Briquet describes one form in which movements are steady under the guidance of the eye, but become irregular as soon as this is withdrawn, this being apparently due to muscular anæsthesia. The varying force of muscular contraction, which may often be recognised in the resistance to passive movement, imparts a jerky unsteadiness to voluntary movements. Sometimes these are steady enough when the patient is in bed, but on standing, swaying, first to one side and then to the other, may be observed. Or even if there be no cutaneous or muscular anæsthesia, the patient may be unable to stand with closed eyes, although perfectly steady when the eyes are open ; the effect of closure being greater even than is seen in true ataxy apart from impairment of sensation (Gowers). (See HYSTERIA.)

ATAXY, LOCOMOTOR, AND INSANITY. (See LOCOMOTOR ATAXY.)

ATELOENCEPHALIA (*ἀτελής*, incomplete ; *ἔγκεφαλος*, the brain). A term for the imperfect development of the brain. (See IDIOCY.)

ATER SUCCUS (*ater*, black ; *succus*, juice). An old term for melancholia.

ATHYMIA (*ἀθυμία* ; from, *ἀ neg. ; θύμος*, mind or courage). An old term used by Hippocrates ("Coac. Prænot." 4 and 482) for dejection of spirits, despondency, melancholia. (Fr. *athymie* ; Ger. *Muthlosigkeit*.)

ATHYMIA PLEONECTICA (*ἀθυμία* ; *πλεονέκτης*, greedy). Insanity accompanied by an inordinate desire for gain.

ATRABILIS (*ater*, black ; *bilis*, bile. Gr. *μέλαινα χολή*). Black bile. A term anciently used for an imaginary black fluid supposed to be the cause of melancholia, when existing in excessive quantity ; it was supposed to be secreted by the adrenals.

ATROPHY OF BRAIN. (See IDIOCY, PATHOLOGY.)

ATTENDANTS. (See INSANE, ATTENDANTS ON THE, and NURSING.)

ATTENTION (*attentio* ; from *ad*, to ; *tendo*, I stretch). The sustained and continued concentration of the consciousness or mental faculties on some particular object or question ; the closeness of the application, the extent to which it is prolonged, and the relevance of the whole train of thought to the object or question under notice, give the measure of the amount and extent of attention. In extreme cases the mind is said to be on the stretch (*ad, tendo*). Attention may be considered as the opposite pole to abstraction in the same mental act (Hamilton). (Fr. *attention* ; Ger. *Aufmerksamkeit*.) (See art. ATTENTION.)

ATTENTION.—Attention may be regarded as a factor in all the higher and more distinct forms of consciousness. It may be defined in general as the active intensification of consciousness in particular directions. Thus to attend to a sense-impression, a bodily pain, or a recurring idea, is to make this element of consciousness supreme for the moment. Attention, which only reaches a considerable development in the case of man, and particularly civilised man, is thus the directive action, by which particular impressions are selectively raised to supremacy, while others are depressed or inhibited. It is through such a process of attention or concentration of consciousness that the presentative material furnished by the senses is rendered distinct, connected in its proper relations part with part, and rendered permanent for the mind's future use. And it is pre-eminently by acts of attention that all the elaborative work of thought, the formation of concepts, and the development of their relations one to another, is effected. Attention is thus the great conditioning

factor in our intellectual life. Learning of every kind depends in its rapidity, and in the permanence of its results, on the energy of attention brought to bear, and it has become almost proverbial that great productive intellect has, as one of its distinguishing characteristics, an exceptional power of mental concentration.

It is customary to distinguish between a lower and a higher form of attention. The former is marked off as non-voluntary or reflex, the latter as voluntary attention. Reflex-attention is the mental reaction called forth immediately by a sensation, or its substitute an idea, when this attains a certain force and permanence. Thus our attention is reflex when we notice a loud or strange and disturbing sound, or a recurring teasing recollection of some omitted duty. Voluntary attention is distinguished by a consciousness of aim or purpose. We attend voluntarily when we are desirous of gaining pleasure, information, or some practical benefit from the object or idea which presents itself. Voluntary attention is no more undetermined than voluntary action. In all cases it has, as its subjective antecedent and stimulus, some feeling or interest, whether speculative, æsthetic or practical. All the higher attention bestowed by the student on his intellectual pursuits is voluntary as thus defined, that is to say, attention consciously directed to the satisfaction of a feeling or interest. The power of intense and prolonged concentration, and of resistance to all distractions, which is best illustrated by the student impelled by an ardent and persistent desire for knowledge, is one of the highest displays of will-force. And thus all great intellectual achievement involves energy of will.

Attention, at least, in its higher voluntary form, has often been conceived as a purely subjective process, and as a direct exertion of the spiritual principle, or the *ego*.* The underlying presupposition of modern psychology that all mental processes are psycho-physical, that is, involve an objective nervous correlative, requires us to regard attention as having its physiological substrate. This substrate manifests itself clearly enough in many forms of attention. Thus, in observing objects through the senses, it is evident that the muscular apparatus of the particular organ engaged—*e.g.*, the eye or hand—is clearly brought into action. To attend to a visible object is to direct the eye to it by an appropriate co-ordination of actions of the ocular muscles. Along with the innervation of particular groups of muscles,

we have the inhibition of other muscular actions. Close attention involves a considerable arrest of movement, as is seen in the involuntary cessation of locomotion, the arrest of the movement of expiration, and so forth, during an intense effort of thought. There is little doubt that this double process, motor innervation and motor inhibition, constitutes the main and characteristic nervous concomitant of the mental state known as attention. Through this accompanying activity of the motor organs, certain muscular sensations are occasioned, and it is these which contribute to the state of attention its most characteristic feature—*viz.*, the consciousness of strain or effort.*

The hypothesis that the physiological basis of attention is a motor process enables us to account for most if not all of the known psychological effects of attention. In the case of attention to external sense impressions, it is obvious, as already pointed out, that the movements of the organs tend, by purely mechanical means, to intensify and render distinct the particular impression selected. This is most apparent in the case of sight, where, by fixating an object, we secure an impression of it by way of the most sensitive part of the retina. But an analogous effect probably takes place in the case of actively touching and of listening. The operation of attention in the sphere of ideation is supposed to be a consequence of this mechanical effect. Thus, in attending to an idea, say of a triangle, we innervate to some extent the ocular muscles, so as to repeat, in a partial manner at least, the movements by help of which we first gained the perception of a triangle. The muscular sensations produced by these nascent movements tend, according to the known laws of association, to reinforce the other constituents of an idea—*e.g.*, the representation of the colour of the object.

Whether this theory is adequate to the explanation of all the known effects of attention is not quite certain. It is not impossible that in all ideational attention there may be a *direct*, as well as an indirect, action of the motor centres concerned on the sensory centres. Thus, when we are trying to imagine a colour, the motor centres specially engaged in the volitional process—which are probably the centres for movements of the head and eyes known to be located in the frontal lobes—may be conceived as reacting by means of established organic connections on the visual centre, and so furthering

* *E.g.*, by Dr. Carpenter in his "Mental Physiology."

* On the motor phenomena which accompany Attention, see Ribot, "Psychologie de l'Attention," chap. ii.

the particular functional activities of the moment. This idea of a direct action of motor on sensory centres in attention has been specially advocated by Wundt.*

The nature of the process of attention has been recently elucidated by a series of experiments. These experiments are among the most important of those researches, commonly described as "psycho-physics," which have helped to determine the exact relation of the subjective to the objective factor in psycho-physical processes. The particular experimental inquiries here referred to are those into what is known as reaction-time (*see* REACTION-TIME). It has been ascertained that attention to a sensory impression is a process of adjustment which occupies an appreciable and measurable time, the time being longer or shorter according as the conditions of adjustment are unfavourable or favourable. Thus, to begin with an unfavourable case, it is found that the reaction-time is appreciably lengthened when a disturbing cause—*e.g.*, an organ playing in the same room—is at work. In the case of a person whose normal reaction-time was 100σ (where σ is $\frac{1}{1000}$ th part of a second) it rose under these circumstances to 148σ . If the subject is taken completely off his guard it may go up as high as 500σ —*i.e.*, half a second. On the other hand, if the process of adjustment is carried out in part beforehand, as may happen when the subject knows antecedently what kind of impression is going to present itself, or at what particular instant, the reaction-time is reduced. Thus, it fell from 253 to 76σ when the subject knew approximately the instant at which the impression was to arrive. When this process of pre-adjustment is complete, an illusory perception with respect to the exact moment of the occurrence of the impression may arise, and the subject react too soon.

These experiments have been varied by Wundt and others in different ways. Thus, instead of a simple sensory stimulus to which a particular form of reaction, say a movement of the hand, is always to follow, one of a number of stimuli is selected, and the subject required to carry out one of a number of movements—*e.g.*, of the different fingers, corresponding by previous arrangement with the particular stimulus selected. These experiments appear to show in general a direct variation in the reaction-time with the complexity of the psychical process involved, but they do not add much to our

knowledge of the process of attention itself.*

Among other results of recent experimental investigation into this subject may be named the following. It has long been disputed how many impressions can be attended to at once. Recent experiments have shown that when a number of small objects, as lines or letters, are placed sufficiently close together to be seen simultaneously in direct vision, and presented to the eye for a period just long enough for the excitation of the retina (about $\frac{1}{100}$ th of a second) four or five such objects can be simultaneously grasped by attention. If the objects can be grouped together as elements of a particular form, a much larger number can then be instantaneously grasped. Again, experimental research has thrown valuable light on the way in which successive acts of attention are carried out. It is well known that a succession of impressions—*e.g.*, sounds, is much more readily attended to when the rapidity is neither too great nor too small. It is found that the most favourable rapidity is when the interval between two successive impressions is from .2 to .3 seconds. Not only so, it has been ascertained that in all prolonged activity of attention, its force or tension rises and falls at regular intervals. Thus, we may say with Wundt that attention is an intermittent, and, at the same time, regularly periodic function. This is illustrated most clearly in the case of a prolonged weak impression just rising above the threshold of stimulation, that is, the intensity of stimulus necessary to produce an appreciable sensation. In this case it is found that instead of a continuous conscious impression the subject experiences a periodic rise and fall of the impression above and below the threshold of consciousness. The interval between two successive re-appearances of the impression is from 2.5 to 4 seconds, the period varying slightly for the different senses. A similar rise and fall in the attention is illustrated in the fact that when we listen to a regular succession of sounds, we tend involuntarily to divide them off into equal intervals or rhythmic divisions, the length of which is found to correspond to that of the interval between two successive elevations of the wave-line of attention.†

We may conclude this account of attention with a few words respecting its

* See Wundt, *op. cit.*, 16 cap. sect. 1-3. Wundt's results have been criticised by Münsterberg, "Beiträge zur experimentellen Psychologie," Heft 1.

† On the Area (*Umfang*) of Attention and its Periodic Oscillations, *see* Wundt, *op. cit.* ii. pp. 246 ff. cf. Münsterberg, *op. cit.* Heft 2, pp. 69 ff.

* See his "Grundzüge der physiologischen Psychologie," third edition, vol. II. pp. 240 ff.

biological function and its value as a symptom of healthy brain action.

The process of attention, which, in its higher volitional form at least, is the subjective correlate of the action of certain supreme controlling centres in the cortex (frontal lobes), may be said to subserve in the economy of human life a nice adjustment of the organism to the special circumstances of the environment. By selective attention we are able at any moment to single out the particular features of our surroundings which are of most consequence to us, and thus to react specially on these. Attention reduces the confusing multiplicity of excitation by which the human organism finds itself surrounded to a comparative simplicity. So far as this solution is due, not to the intensity or force of the particular impression itself, it is, as we have seen, the result of interest. We attend to what interests us, in other words, to what is of significance, of value, or of practical utility for us; and by thus singling out for special attention impressions which have a predominant interest for us, we are able to react on the environment at the points where it is in a special sense *our* environment, or, in other words, where it stands in a vital relation to us.

Just as man surpasses the lower animals in the number and complexity of his interactions with the environment, and the consequent need of selective attention, so the civilised man surpasses the uncivilised. It has been said by Ribot that voluntary attention is the product of civilisation, with its characteristic demand for steady prolonged work. The growth of the power of attention is indeed a measure, and by no means the worst measure, of mind-development as a whole. In viewing attention in this way we have to consider both the range of interest and the intensity and duration of the effort possible. A mind of high mental development transcends one of low development in both respects: it is at once touched and roused to activity at a greater number of points, and capable of a more perfect and more prolonged concentration. The increase in range of interest which attends mental development, appears manifestly if we compare the restricted area of attention in early life, corresponding with a few natural impulses or inclinations, with the vast range of attention in the cultivated adult, answering partly to an intellectual or ideal extension of the primitive impulses—*e.g.*, business, preservation of health, partly to new and acquired feelings and propensities—*e.g.*, social, political, artistic interests. The

increase in power of prolonged effort, which is also a main factor in mental development, is seen by comparing what a child can do at the beginning and at the end of his school course. The man of consummate mental power illustrates at once the widest area, and the most intense and persistent effort, of attention.

Voluntary attention, correlated as it probably is with the efficiency of the highest, latest developed, and most easily deranged nervous centres, offers an important means of estimating mental health and vigour. Mental weakness or imbecility may be tested by exercises of attention. Thus, it has been found that imbecile children fall below normal ones in their power of repeating a succession of sounds—*e.g.*, names of digits, immediately after hearing them; and this inferiority is probably due, in part at least, to a deficiency in power of attention.* Again, experiment goes to show that the reaction-time in the case of subjects affected by mental disorder is greater than in normal cases, and this difference, if confirmed by further investigations, would tend to establish a like conclusion.

Mental disease is commonly attended with disturbances of the normal process of attention. One characteristic variety of this is seen in all cases of persistent or mastering ideas ("idéés fixes," "Zwangsvorstellungen"). Here we see the restriction of the normal freedom and variety of movements of attention under the dominant and persistent influence of some exciting idea or group of ideas. Attention ceases to be voluntary and is degraded into a single reflex. The incipient stages of this trouble present themselves whenever any restricted group of ideas gets more attention than it ought to do, as judged by its importance in the scale of life-interests. Thus, when a man is unable to throw off the cares of business, and ceases to give a normal proportion of attention to other objects of interest, we have the manifestation of an incipient tendency to morbid mental preoccupation.

Since, as we have seen, attention has, as its immediate effect, the intensification of the impression or idea attended to, such persistent attention to a particular idea or group of ideas may be expected to produce a preternatural degree of intensification. And this is what we find. When an idea becomes fixed by a loss of the voluntary power of diverting the attention in other directions, we have a tendency to abnormal vividness of imagination and hallucination. Occasional instances of

* See the report of Mr. F. Galton in "Mind," vol. xii. p. 79.*f*.

this occur in normal life, as in the momentary illusions or hallucinations which follow intense and prolonged expectation. "Expectant attention" has been regarded by some (*e.g.*, Carpenter) as a chief source of the illusions of spiritualism and kindred errors. The phenomena of "suggestion" manifesting themselves in artificially produced sleep (hypnotic state) appear also to illustrate the abnormal intensification of particular ideas which follow on undue restriction of the area of consciousness.*

The complete realisation of the tendency towards monoideism, or a rigid fixation of the attention on a single idea is seen in states of religious ecstasy and analogous mental conditions. Here the complete mastery of the attention by an idea as a consequence of a persistent voluntary effort of concentration, results in a temporary hallucination of a most profound and agitating character.

From this degradation of voluntary attention to a single reflex—*viz.*, mental absorption in a particular idea, we have to distinguish the loss of the power of attention in all directions. This occurs in all states of mental exhaustion, as in the temporary fatigue induced by excess of brain-work or muscular exertion, senile imbecility, and so forth. In sleep, according to recent writers, there is a considerable reduction, if not a complete suspension, of the power of voluntary attention. The known effect of alcohol and other stimulants is to bring about an intensification of the mental imagery, and an acceleration of its flow, with a proportionate loss of the power of fixing ideas and controlling their order of sequence. This effect becomes exaggerated in states of mania when a chaotic flux of images invades the mind, and the subject is bereft of all power of arrest.

The importance of the power of voluntary attention in the economy of the mental life suggests the desirability of a careful development of it by the processes of education. The aim here should be a double one: (1) to train the will to perfect concentration and control of the thoughts, and (2) to develop a sufficient diversity of intellectual interest so as to secure a readiness in transporting the thoughts from one subject to another. Existing systems of education are wont to give more heed to the first than to the second of these ends. It should never be forgotten that a wide

culture or a liberal education may be recommended not only as a great benefit in itself, but as a condition of mental health. Narrowness of interest with its accompanying tendency to monoideism is one fertile source of danger in an age when subdivision and specialisation of work has been carried to an extreme point. The educator may to some extent work against this tendency by developing a due variety of tastes and interests in the pupil's mind, and by exercising his will in carrying the attention easily and readily from one domain of ideas to another.

JAMES SULLY.

[The Psychology of Attention is dealt with by Sir H. Holland, "Mental Physiology"; by Sir W. Hamilton, "Lectures on Metaphysics," i. xiv.; Sully, "Outlines of Psychology," chap. iv.; J. Ward, art. "Psychology," in the *Encyclopaedia Britannica* (9th ed.). The Physiology and Pathology of the subject are dealt with by Carpenter, "Mental Physiology," book i. chap. iii.; Maudsley, "The Physiology of Mind," chap. v.; Ferrier, "The Functions of the Brain," chap. xii.; and also by Wundt and Ribot in the works already referred to.]

ATTENTION, AUTOMATIC (*ad; tendo; αὐτόματος*, of one's own accord). That involuntary form of attention which is secured by the attractiveness of the object.

ATTENTION, VOLITIONAL (*ad; tendo; volitio*, the will). That form of attention which is obtained by an effort of the will.

AURA (*ἀύρα*, a breeze). Any subjective sensory or motor phenomenon preceding some epileptic, hysterical, or hysteroid convulsive attack. The origin of the term is due to the sensation of a draught of cold air in the extremities, head, &c., most usually observed before an epileptic seizure. (*See* EPILEPSY, HYSTERIA, HYSTERO-EPILEPSY.)

AUSTRALIA, Provision for Insane in.—The peculiar circumstances under which Australia was first colonised, the struggles and hardships of early colonial life, the excitement of the gold diggings, and the lonely life led by the shepherd in the vast plains of the interior, all tended to the production of a large amount of insanity; but in the early days of Australian colonisation the prisons, as in other countries, were the only refuge for those suffering from mental derangement, and it was not until the year 1831, during the governorship of Lieutenant-General Darling, that a special building was erected for the insane in the Australian continent. This building was designed by the officers of the Royal Engineers then stationed at Sydney, with accommodation for sixty patients, and was placed on a fine site on the banks of the Parramatta River in

* The reference of the phenomena of hypnotic suggestion to "a concentration of the attention" has been attempted by Braid, Carpenter, and others, but is not free from difficulties. *See* Ribot, *op. cit.*, pp. 159, 160.

New South Wales, the mother colony of the Australian group. It was a fair example of the asylum architecture of that date adapted to the necessities of a hot climate, but was soon found too small for the ever-increasing number of insane, and has been added to from time to time, until it has now accommodation for nearly 700 patients, and is known as the Hospital for the Insane at Gladesville. As each colony was founded or was separated from New South Wales, separate provision was made for the cases of insanity occurring within its boundaries, and in the cases of Victoria and Queensland—offshoots of New South Wales—the insane who had accumulated in the hospitals of the mother colony, and who had been originally received from the separated territories, were handed over to the authorities of the new colonies as soon as special provision could be made for them, and legal enactments to justify their detention had been passed. The hospitals at New Norfolk in Tasmania, at Adelaide in South Australia, and Yarra Bend in Victoria, were the first special institutions for the insane in the respective colonies. The former was not built until some years after the foundation of the colony, which took place in 1804, the insane in Tasmania being first housed in the convict prison at Port Arthur—but South Australia and Victoria made special provision for their insane immediately on the establishment of the colonies in 1836 and 1851 respectively, and Queensland did the same at Goodna, some miles from Brisbane, on its separation in 1859.

For the insane of Western Australia no special provision has yet been made apart from the old prison buildings in which they were originally placed, though these have been much altered to meet the needs of the special class to whom they are now appropriated.

The earlier buildings for the insane in the Australian colonies display but little forethought and convenience in their arrangements, and perhaps even less architectural embellishment. They were built piecemeal, and to meet the rapidly increasing need of accommodation, and with but little regard to European models or precedents, but with the increase of population and of wealth which followed the discovery of the gold-fields came another era. Victoria built three fine hospitals for the insane, between 1860 and 1870, at Kew, Beechworth, and Ararat; and South Australia founded Parkside, near Adelaide, which with its recent additions is now the Kankakee of the south hemisphere.

New South Wales in 1884 completed at Callan Park a special institution for 800

patients, which compares not unfavourably with the best and latest English models, and Queensland has built, and is on the point of opening, the earlier blocks of a fine building at Toowoomba.

On January 1, 1889, the population of the Australian colonies was 3,076,288, and the number of insane at this time was 8681, being one for every 354 of the population, or 2.82 per 1000.

The table on p. 112 shows the population and the number of insane in each colony.

It will be seen, first, that the number of the insane differs very much in the different colonies, ranging from 1 in 300 in Victoria to 1 in 427 in South Australia; secondly, that of the total number 5016 are males and only 3665 females; and thirdly, that the proportion of males to the male population is 1 in 334 or 2.99 per 1000, whilst there is only 1 insane female in every 382 of the female population, or 2.61 per 1000. The statistics of insanity in Australia show that, though the increase in proportion to population was in the earlier years of the colonies singularly rapid, there has been little or no increase during the last ten years. The proportion of insane to population was, on January 1, 1879, 1 in 356 or 2.80 per 1000, and on January 1, 1889, 1 in 354 or 2.82 per 1000. In the older colonies, notably in Tasmania, there has been some slight decrease, and such increase as has occurred during the last ten or even the last twenty years in the younger colonies has been due not to any proportional increase in the rate of "occurring insanity," but to the accumulation of chronic cases.

The admissions in proportion to the population were, in 1878, 1 in 1550, and ten years later (1887) had dropped to 1 in 1738. The average for the ten years being 1 in 1690. The recovery rate in Australian asylums for the decennial period, 1878 to 1887 (including idiots who are eliminated from the returns showing the recovery rates in English asylums), was 42.09 per cent., whilst an additional 6.97 per cent. were discharged or relieved. The death-rate during the same period was 7.09 per cent., which is nearly $2\frac{1}{2}$ per cent. below the death-rate in English asylums for the same period. This small death-rate is no doubt mainly due to the warmth and equability of the Australian climate, the insane as a consequence being much less liable to pneumonia and other chest affections than they are in Great Britain. Comparing the mortality in the different colonies, it appears that with one exception the warmer and more equable the climate the lower the death-rate. At the

Return showing Population of Australian Colonies, and the Number of Registered Insane on January 1, 1889, together with the Proportion of Insane to Population at that Date.

Year of Foundation of Colony.	Colony.	Population January 1, 1889.			Number of Insane January 1, 1889.			Proportion of Insane to Population January 1, 1889.		
		Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.
1788	New South Wales	599,107	486,633	1,085,740	1,776	1,122	2,898	{ 2.96 per 1000 or 1 in 337 }	{ 2.30 per 1,000 or 1 in 433 }	{ 2.76 per 1,000 or 1 in 374 }
1851 (separated from N.S.W.)	Victoria	581,333	509,536	1,090,869	1,967	1,667	3,634	{ 3.38 per 1000 or 1 in 295 }	{ 3.27 per 1,000 or 1 in 305 }	{ 3.33 per 1,000 or 1 in 300 }
1836	South Australia	167,114	156,818	323,932	430	328	758	{ 2.57 per 1,000 or 1 in 388 }	{ 2.09 per 1,000 or 1 in 478 }	{ 2.34 per 1,000 or 1 in 427 }
1859 (separated from N.S.W.)	Queensland	225,517	161,944	387,461	575	350	925	{ 2.55 per 1,000 or 1 in 392 }	{ 2.16 per 1,000 or 1 in 462 }	{ 2.39 per 1,000 or 1 in 418 }
1804	Tasmania	78,029	68,120	146,149	189	157	346	{ 2.42 per 1,000 or 1 in 412 }	{ 2.30 per 1,000 or 1 in 433 }	{ 2.36 per 1,000 or 1 in 422 }
1829	Western Australia	24,275	17,862	42,137	79	41	120	{ 3.25 per 1,000 or 1 in 307 }	{ 2.29 per 1,000 or 1 in 435 }	{ 2.84 per 1,000 or 1 in 351 }
Total.		1,675,375	1,400,913	3,076,288	5,016	3,665	8,681	{ 2.99 per 1,000 or 1 in 334 }	{ 2.61 per 1,000 or 1 in 382 }	{ 2.82 per 1,000 or 1 in 354 }

present date less than 24 per cent. of the insane under care in Australian hospitals are natives of Australia. Upwards of 26 per cent. were born in Ireland, 23 per cent. in England, 6 per cent. in Scotland, 2 per cent. in Germany, 2 per cent. in China, and about 1 per cent. in France. Among the remainder almost every European nationality is represented together with Australian aborigines, South Sea Islanders, West Indian Negroes, Malays and natives of British India. In the older colonies—New South Wales and Tasmania—the proportion of patients of Australian nationality is, as might be expected, greater than in those more recently founded. In Tasmania it is 32 per cent., in Queensland 12 per cent. only. It is difficult at present to draw any exact conclusions as to the liability to insanity of persons of Australian nationality as compared with those born or living in other countries, since a large proportion of native born Australians are still of an age to which insanity is not incidental in an average ratio, but it is certain that general paralysis and epilepsy are not only much less frequent in Australian than in English asylums, but that the former, which constitutes upwards of 8 per cent. of the admission to English hospitals, and only $3\frac{1}{2}$ per cent. of the admissions to Australian asylums, is rarely seen in persons of Australian nationality. Each of the Australian colonies has its own lunacy laws, passed at various dates, and embodying a foundation of English law and precedent with a superstructure suited to colonial needs and expediency, the scattered population, the paucity of qualified medical practitioners, the difficulties of transit and other matters having necessarily been taken into account in legislating on this subject. In New South Wales and Queensland provision is made by legislative enactments for the establishment of reception houses for the early treatment of cases of insanity—and by the Victorian Act lunacy wards are attached to public hospitals, and serve a similar purpose. The hospitals in all the colonies are State institutions, maintained by votes passed by the several colonial legislatures, and administered by officers who are members of the Civil Service, and are appointed by the several governments. The heads of the establishments are invariably qualified medical practitioners, and in the larger hospitals there are one or more assistant medical officers who also possess recognised moral qualifications. In New South Wales and Victoria special inspectors of hospitals are charged with the supervision

of the departments, and there are also local boards of official visitors, whilst in the other colonies these official visitors carry out the whole duty of inspection under the provisions of the statutes.

The maintenance rate varies but little in the different colonies, and ranges from 11s. 1d. a week in South Australia and Queensland, to 13s. 9d. in Tasmania. Considerable payments are, however, made towards the maintenance of patients by their friends, and deducting these and other collections, the cost per head to the Government ranges from 10s. in South Australia to 10s. 6d. in Tasmania and New South Wales. The cost under the heading of salaries is larger than in Great Britain, owing to the higher rates paid to the attendants and nurses, whilst that for provisions generally is somewhat less, meat being considerably lower in price than in England. The only private institution for the insane in Australia is the licensed house at Tempe, near Sydney, New South Wales, in which fifty patients are supported at the expense of the general government, and there are about the same number of private patients. This institution is under medical superintendence and Government inspection.

The much debated question of the separation of acute and chronic cases, by placing them in different institutions, has found a practical settlement in the three more populous colonies. At Parramatta in New South Wales, Sunbury in Victoria, and Ipswich in Queensland, buildings erected for other purposes, and unsuited for the more demonstrative classes of the insane, have been set apart for chronic cases, and this arrangement seems to tend to economical administration and more systematic classification. Although the lunacy laws of all the colonies contain clauses dealing specially with the criminal insane, separate provision for this class (including Queen's pleasure cases) has been made only in New South Wales and Victoria. In the other colonies the number is as yet too few to justify the expense of special hospitals, and the insane criminals are maintained in the ordinary hospitals—usually in separate wards.

There has not been any special legislation for idiots who are, as yet, dealt with under the provisions of the general lunacy statutes, but the need for the separation of this class has been distinctly recognised. In New South Wales all the idiotic and imbecile patients are collected in a special hospital, which is situated at Newcastle. In Victoria and Tasmania special cottages in connection with the hospitals, at Kew and at New Norfolk,

have been erected for this class, and at the former of these a systematic attempt has been made to educate and train them, with a result so satisfactory that the example of Victoria must ere long be followed by the other colonies.

The well-to-do condition of the working-classes in Australia has hitherto rendered the boarding-out of the insane (the payment of strangers to receive and take care of them in their own homes) impracticable, since very few persons would be content to devote themselves to the care of this class for anything like the sum which could, with due regard to economy on the part of the Government, be granted for their maintenance; whilst the absence of village life, the isolated dwellings, the sparse population, the special dangers and difficulties of "bush life," the want of municipal organisation, and the impossibility of effective medical and parochial supervision, also stand in the way of an adoption of the system except in very special and isolated cases. Attempts have however been made in one or more of the colonies to assist and encourage the friends of the chronic insane, by means of pecuniary allowances, to keep them at home, or remove them from hospital when fit for such removal, and is likely to form part of the asylum system, though the number so provided for will probably not be large for some years to come.

The following return shows a list of Australian hospitals for the insane, with the number of patients in each on Jan. 1, 1889:

New South Wales	{ Gladesville . . .	772
	{ Parramatta* . . .	989
	{ Callan Park . . .	730
	{ Newcastle † . . .	241
	{ Tempe ‡ . . .	102
	{ Parramatta (Criminal) § . . .	63
Victoria	{ Yarra Bend . . .	933
	{ Kew (including Cottages for Idiots)	1143
	{ Ararat . . .	481
	{ Beechworth . . .	539
	{ Sunbury* . . .	535
South Australia . . .	{ Adelaide . . .	241
	{ Parkside . . .	517
Queensland	{ Goodna . . .	806
	{ Ipswich* . . .	119
	{ Toowoomba ¶ . . .	—
Tasmania	{ New Norfolk . . .	294
	{ Cascades . . .	55
Western Australia	{ Freemantle . . .	120

* For chronic cases only.

† For idiots and imbeciles only.

‡ Private licensed house.

§ For criminals only.

|| Contains special buildings for criminals.

¶ Not yet occupied.

F. NORTON MANNING.

AUSTRIA.—The best summary of the working of the Lunacy Laws is contained in the Circular Despatch of 1884 communicated to Earl Granville by Her Majesty's representative at the British Embassy, Vienna. With slight omissions, we reproduce it.

The lunatic asylums in Austria rank high amongst the numerous philanthropic institutions.

No visitors are admitted without a special permit.

There are private and public asylums.

The private asylums are subject to special regulations; a licence must be obtained from the Provincial Government; this is granted if the responsible manager is a graduated Doctor of Medicine, but he must have an unimpeachable character, and must prove his capability to manage such an institution by certificates, to show that he has a theoretical and practical knowledge of the treatment of disorders of the mind. He must lay before the authorities a detailed design of the building in which he intends to locate his patients. This building must be situated in a quiet, healthy part of the country, and well provided with good water. He is bound to state the number of persons to be admitted, and produce the rules of the house. At the close of each year he must deliver a report of the results obtained. The head physician must live in the establishment.

In a private asylum, only persons labouring under disordered intellect of any kind can be admitted. The admission of a patient can take place only where a medical certificate is given proving the fact that the person is suffering from disordered intellect. In cases which have been preceded by medical treatment the history of the patient's suffering must be drawn up by the physician who had treated him, and be produced. The certificate for the admission of a patient into a private institution must be issued by the district or municipal physician of the patient's native place, or, if issued by any other physician, it must be certified by one of the above-mentioned official physicians. There is an exception, however, in the case of patients whose malady assumes a dangerous character, or in respect to foreigners; the physician is authorised to admit such patients without the required certificate, provided he reports within twenty-four hours such cases to the authorities, in order that the official physician may be instructed to investigate the case. Each admission of a lunatic into an asylum must be notified to the competent Court of Justice of the district in which the asylum is situated.

Persons who have recovered from their malady must be discharged at once after the fact of their recovery has been notified to those persons at whose instance they were admitted into the asylum. Patients can also, in fact must, be discharged at any time, if a demand to that effect is put forward by their relations or their legal trustee. In the case of patients of a violent character, a reciprocal bond must be handed to the manager of the asylum before they can be discharged.

Government uses the right of inspection of all asylums by means of the ordinary official sanitary authorities; these are bound to visit the institutions at indefinite times, but once at least within three months. They are bound to accept any petition made by the patients and investigate the same; they must study the history of the malady of each patient, and see that all the stipulations ordered on the admission of a patient into the asylum have been fulfilled, and that the respective notices to the Courts of Justice have been issued. If at any time it should appear that the managing physician does not possess the necessary qualities for carrying out the exceptional duties necessary in an asylum, the provincial government can order his dismissal, or in case the organisation of the institution is found to be of such an imperfect nature that patients can no longer be intrusted to it, the authorities are bound to withdraw the licence and to effect at once the removal of the patients.

The organisation of the public asylums in Austria is regulated by the statutes of the different provinces, which are subjected to the approval of the Home Ministry. The public lunatic asylums, like the private ones, are bound to notify to the competent Court of Justice in their respective districts each admission and discharge of a patient. The maintenance of lunatics in public asylums is divided into three classes, the same as in private asylums. Persons suspected of being insane must be sent to the observation department of a public hospital to be there examined, and, if found insane, must be at once sent to one of the public asylums. On the admission of a patient into a public asylum the following papers must be produced:

1. A certificate issued by an official or practising physician certifying that the patient to be admitted is insane.

2. A history of the illness drawn up by the patient's physician, which ought also to contain an opinion respecting the probability of a cure being effected or not.

3. An official document, stating to which municipality the patient belongs.

4. A declaration whether the patient can be maintained out of his own property, or by whom his keep will be paid, and as to what class of maintenance is desired.

5. In case of partial or total impossibility to pay for the maintenance, a legal certificate of poverty must be given.

6. The name of the legal trustee of the patient, or in case of such trustee not being yet nominated, the name of the person who, until the trustee has been nominated, is authorised to represent the patient in his relations towards the asylum.

It appears that the above provisions work admirably in favour of the patient and the public, as hardly any cases of abuse have been brought to notice.

The number of asylums in Austria in 1880 was 27, viz., public 22, private 5. Of the latter, 4 are in Lower Austria and 1 in Bohemia. There were 9589 patients. (See APPENDIX.) THE EDITOR.

AUTARCIA (*ἀνάρκεια*, contentedness). Tranquillity of mind.

AUTHYNOBATESIS (*αὐτός*, self; *ὑπνος*, sleep; *βαίω*, I walk). Spontaneous somnambulism.

AUTOCHIR, AUTOCHIRIA or **AUTOCHIRUS** (*αὐτός*, self; *χέρι*, the hand). Terms applied to one who commits suicide, or the act of suicide itself. (Fr. *autochirie*; Ger. *Selbstmord*.)

AUTOCTONIA (*αὐτοκτονέω*, I slay myself). Suicide.

AUTOMATISM, Mental (*αὐτός*, the person himself; *μάτος*, search or action). A state in which a series of actions are performed without cerebral action or conscious will, as during reverie or in certain morbid conditions.—Mental automatism was brought prominently into notice by Prof. Laycock, who introduced the term reflex function of the brain (*Edin. Med. and Surg. Journ.* 1838, 1839, "Diseases of Women," 1840). Prochaska, in his work "On the Functions of the Nervous System," had hinted at the same doctrine. Dr. Carpenter, in his "Principles of Human Physiology," expounded a similar theory, and observed that "much of our highest mental activity is to be regarded as the expression of the automatic action of the cerebrum" (p. 607). Again, in further explaining what he himself preferred to call "unconscious cerebration," he observed: "Looking at all those automatic operations by which results are evolved without any intentional directions of the mind to them, in the light of reflex action of the cerebrum, there is no more difficulty in comprehend-

ing that such reflex actions may proceed without our knowledge, so as to evolve *intellectual products*, when their results are transmitted to the sensorium, and are thus impressed on our consciousness, than there is in understanding that impressions may excite muscular movements through the reflex power of the spinal cord, without the necessary intervention of sensation."

M. Pierre Janet has recently devoted a work to "L'Automatisme Psychologique" (1889). Automatism, according to his definition, must be spontaneous; it must be subject to invariable law. The first efforts of human activity are excited by external impulses. Usually, a third condition is attached to the term, namely, that it is mechanical and entirely without consciousness, but Janet does not accept this factor in the definition. He admits the simultaneous conditions of consciousness and automatic action. His object is to demonstrate, not only that there is human activity deserving to be termed automatic,

but that it is legitimate to call it *mental automatism*. Again, automatism is often manifested by complex actions independent one of the other, before passing into the region of the will. In other words, it may be partial, that is, only occupy the mind partially when several elementary activities may be simultaneously developed in the same thought. (See EPILEPSY, SOMNAMBULISM.)

AUTONOMY (αὐτονομία, independence; from αὐτός, self; νόμος, a law). Kant's term for the absolute sovereignty of reason in the sphere of morals.

AUTONYCTOBATESIS (αὐτός, self; νύξ, night; βαίνω, I walk). A synonym of Somnambulism.

AUTOPHONIA (αὐτοφονία, self-murder). A synonym of Suicide. (Fr. *Autophonie*.)

AUTOPHONOMANIA (αὐτοφόνος, a self-murderer; μανία, madness). A synonym of Suicidal Insanity.

AYPNIA (ἀ, neg.; ὕπνος, sleep). A synonym of Sleeplessness.

B

BABUZICARIUS (βαβάζω, I speak incorrectly). An old term for ephialtes, or nightmare, from the indistinct attempts to speak or cry out in this affection.

BALBUTIES (*balbutio*, I stammer; Heb. *balbel*, to stutter). Hesitation of speech, stuttering, stammering. (Fr. *balbutiement*; Ger. *Stammern*.)

BALLISMUS (βαλλισμός from βαλλίζω, I dance). A synonym of Chorea Major, or St. Vitus's Dance. (See HYSTERICAL CHOREA, DANCING MANIA.)

BALLO DI SAN VITO (Ital.). St. Vitus's dance; Chorea Major; Dancing Mania.

BANKRUPTCY, Law of, in relation to Insanity.—There is some authority for the proposition that a lunatic cannot commit an act of bankruptcy—the *gist of which is intention*—e.g., a fraudulent preference or a fraudulent conveyance. But the cases that support this statement are not of very recent date,* and it must be received with some hesitation.

If during a lucid interval a lunatic contract a debt and commit an act of bankruptcy, he can be adjudicated bankrupt.†

Where it appears to be for the benefit of a lunatic, the Court of Appeal will give leave to the committee in the name of the

lunatic to file a declaration of insolvency or to present a bankruptcy petition.*

Again, the committee of a lunatic who has carried on his business may with the leave of the Court of Appeal sitting in lunacy consent to an adjudication against him.†

A. WOOD RENTON.

BARKERS.—A name given to the victims of a religious hysterical epidemic which spread through the United States in 1798–1805. The subjects used to fling themselves on the ground howling and barking like dogs. (See JUMPERS, THE JERKS, CHOREA, HYSTERICAL, &c.)

BARYENCEPHALIA (βαρύς, heavy; ἐγκέφαλος, the brain). A synonym of Imbecility. (Fr. *baryencephalie*.)

BARYGLOSSIA or **BARYGLOTTIA** (βαρύς, heavy; γλῶσσα, the tongue). Slow or heavy utterance, laboured speech arising from disease of the nervous system.

BARYLALIA (βαρύς, heavy; λαλία, speech). A synonym of Baryglossia (q.v.). (Fr. *barylalie*.)

BARYPHONIA (βαρύς, heavy; φωνή, the voice). Difficulty of speech. (Fr. *baryphonie*.)

* Bankruptcy Act, 1883, *Re James*, 12 Q. B. D. 332; where a lunatic is not so found, the Court may appoint any person to act for him; the rule applies to a lunatic creditor as well as to a lunatic debtor. See Bankruptcy Act, 1883, s. 148, and Rules, 1886, r. 271.

† *Re Lee*, L. R. 23 Ch. D. 216.

* Cf. *Ex parte Stamp*, 1846, De Gex, 345. Even there it is merely laid down as probable.

† *Ex parte Layton*, 6 Ves. Jun. 434.

BARYTHYMIA (*Bapús*, heavy; *θυμός*, the mind). Deep or profound melancholy. (Fr. *barythymie*; Ger. *Schweremuth*.)

BASEDOW'S DISEASE. (See EX-OPHTHALMIC GOÏTRE.)

BATHS.—The principal baths that have at various times been employed in the treatment of the insane are as follows:

1. Prolonged warm or hot baths.
2. Prolonged warm baths with the addition of cold to the head.
3. Prolonged warm sitz baths.
4. Prolonged warm baths medicated with mustard.
5. Prolonged cold baths.
6. Dip baths.
7. Baths of surprise.
8. Suffusion of tepid and cold water from pails.
9. Douches.
10. Showers.
11. Packing in the wet sheet.
12. Packing in the dry sheet.
13. Packing in mustard and water sheets.
14. Hot air (Turkish) baths.
15. Vapour (Russian) baths.

1. Prolonged Warm or Hot Baths have for long been a favourite remedy, and are without doubt most important therapeutical agents in the treatment of certain forms of insanity. Mention is made of their use by most writers on insanity from Pinel downwards, and they are still extensively used and recommended. They are chiefly prescribed for cases of sub-acute mania, marked by great nervous irritability and insomnia, and also occasionally in acute delirious mania.

In the former class of case the bath should be given the last thing at night for a succession of nights, at a temperature of from 95° to 98° , and may advantageously be combined with a mild opiate. In many cases thus treated, the habit of sleep induced thereby is frequently the precursor of ultimate recovery.

When ordered in the treatment of acute sthenic mania, however, the temperature should be higher and the bath more prolonged. Indeed, it has been used for many hours at a time, and at a temperature of from 100° to 110° or even more. Such baths, however, cannot but be attended with very considerable risk, and the usual course therefore at the present day is to place the patient, to commence with, in a bath of a temperature of 96° , gradually raising it to 104° or thereabouts, the time being prolonged from thirty minutes to an hour. Even with baths of such modified severity as this, there must always be some little tendency to exhaustion, so that

it is never prudent to employ them except in the presence of a medical man or some experienced person, who should carefully note from time to time the effect produced, as syncope may come on with but short warning at any time, especially in cases of raving delirium, in whom the transition from extreme exaltation to fatal exhaustion is often momentary. In females this may be effected, and decency thus maintained, by the patient wearing a light dress or chemise whilst in the water. It is also a wise precaution to lift the patient out of the bath at its termination, as there is a liability to faintness if the erect position is too suddenly assumed. Of course, some patients struggle violently when first put in the water, and a wood covering to the bath, with an aperture for the head and neck has been used, chiefly in France, but cannot but be attended with considerable danger. Dr. Bucknill recommends a reclining chair, which fits into a bath of large size, and is constructed so as to afford a good support to the head, and is an admirable arrangement with a violent patient, as it enables the attendants to easily keep him in the bath, and, as a rule, the soothing effect of the hot water soon begins to tell, and the patient ceases from struggling, except occasionally and spasmodically. Similar baths, of a somewhat modified character, have also been recommended and used in certain cases of melancholia, in whom the secretions are out of order, as evinced by a dry harsh skin, coated tongue, foul breath, constipation, and sleeplessness. But, as a rule, melancholics do not stand prolonged warm baths well if used sufficiently powerfully to produce their sedative effect, owing to the debility they give rise to.

As regards the action of baths of warm water on an insane patient, that necessarily very much depends on the degree of heat used. Any temperature above blood heat causes accelerated circulation, increases respiration, raises the temperature of the blood, and tends to produce syncope, causing, as it does, violent reflex action on the heart and lungs; and, of course, as the temperature is increased, so these symptoms become exaggerated. So that when 120° to 126° are reached, such a temperature can only be borne for a few minutes.

Such being, according to the best observers, the action of hot water baths on the system, it may be presumed that the benefit resulting from their use in the treatment of mania is due to the relief afforded to the congested brain by the effect on the circulation, which reacts on the nervous system generally, and thus

tends to allay irritation, and to produce their soporific effect. But inasmuch as the tendency of even acute sthenic mania is towards physical exhaustion and the inducement of typhoidal symptoms, and as the prolonged warm bath is decidedly weakening, it is evident that the aim should be to produce the maximum sedative effect of the hot water, with as low a degree of heat in each case as is compatible with this effect. This would seem to be generally recognised, so that very hot or very prolonged baths are now seldom prescribed, and the endeavour aimed at is to obtain the sedative and soporific actions of the bath by using as low temperature and as short periods as are commensurate with this result, which the general consensus of opinion would seem to fix at a temperature of from 96° to 104° , and a period of thirty minutes to half an hour.

It is true that on the Continent, and especially in France, such eminent specialists as the Falrets, father and son, Brierre de Boismont, Morel, &c., place their patients in warm baths for hours at a time, but the temperature is maintained at only from 85° to 95° , whilst to avoid any possible tendency to syncope, the patient is constantly fed with nourishing and stimulating food. It is difficult to understand the rationale of such baths, because such a temperature, being, as it is, below blood heat, does not raise the temperature of the body, and can give rise to no reaction, and cannot affect the circulation in the central nervous ganglia.*

2. Prolonged Warm Baths, with the Addition of the Application of Cold to the Head, appear to be even more efficient in lessening cerebral hyperæmia than the preceding, and are most extensively used. The course now very generally adopted is to apply relays of towels previously dipped in cold water to the head whilst the patient reclines in a hot bath of a temperature varying according to the severity of the symptoms and his physical condition, the duration being guided by similar indications.

Other modes of applying cold affusion to the head are by slowly pouring a cold spray from a height on to the scalp, or by allowing water to drip gently, and at intervals, from a small douche pipe, and if no other means are at hand, a garden watering-pot, or even an ordinary jug may be used.

The sedative and soothing effect of these

* For some years they have been used at Bethlem Hospital with great advantage. Temp. 85° to 90° . The number of hours varies from one to ten. No alarming symptoms have occurred.—Ed.

baths is often very pronounced, and patients themselves are stated to have remarked on the calming result of the application of the cold to the head. But as they are necessarily attended with the same, or even greater, risks than the simple warm baths, their effects should be as carefully watched.

A still more powerful mode of applying cold to the head is by using ice-bags instead of cold water, should the latter fail in its results.

3. Prolonged Warm Sitz Baths of a temperature of about 98° , with or without the addition of mustard, are frequently prescribed for females whose insanity is due to, or accompanied by, amenorrhœa. By congesting the vessels leading to, and in, the pelvic viscera, they tend to promote the flow of the catamenia, the return of which naturally improves the general health, and so enhances the prospect of a return to mental equilibrium. Their use should be commenced two or three days before the menstrual flow is supposed to be due, continued for a week, then discontinued, and resumed at the next monthly period.

4. Warm Baths medicated by Mustard.—In cases wherein it is desired rapidly to diminish the circulation and to lower the temperature, as in acute cerebral hyperæmia, the addition of mustard to the warm bath will do so, by the intense irritation and congestion produced in the skin. The quantity of mustard required to produce this result is about one ounce of mustard to ten gallons of water. Dr. Brunton advises that such a bath should never be of more than ten minutes' duration, and that the patient should be at once removed if either burning of the skin or a tendency to shivering be produced.

5. Prolonged Cold Baths have occasionally been recommended and used in the treatment of insanity. It is claimed for them that they have a direct sedative effect on the nervous system. The immediate result of placing a person in cold water—that is, water of a temperature at or below 70° , is to contract the cutaneous capillaries, drawing the blood inwards, and causing a feeling of chilliness, and to give a perceptive shock to the nervous system. This is followed by a reaction, and the blood rushes back to the surface, a flow of warmth is felt, and a decidedly tonic effect produced. If the operation of the bath ends here, the general condition of the body is braced up and improved, but no sedative result can be produced on the nervous system.

If the bath is prolonged, then periods of

depression and reaction recur for a time. But the constant withdrawal of heat eventually causes the cerebral nervous system to become affected, the reactions gradually cease, and the depression gains the mastery. Herein must rest their value, if any, in the treatment of mania, although necessarily reaction must arise sooner or later after the bath is discontinued, or the permanent somatic injury would outweigh the benefit the nervous system might derive from the sedative effect. It must be remembered also that it is admitted that cold baths are dangerous when the system is exhausted by fatigue, therefore it cannot but be that they must be so when applied to a system worn out by delirium, probably attended by insomnia and refusal of food. Therefore, they must be used with great caution, and only in the early stages of the malady.

6. **The Cold Dip Bath** was much used fifty years ago. The patient was plunged into a large cold bath, and the head held under by attendants for a few moments. The head was then raised to allow the patient to respire, and the process repeated several times, according to the strength of the patient and the acuteness of the symptoms. Any beneficial result this heroic mode of treatment could have had must have been due to moral rather than physical effects, and must have been viewed more in the light of punishment than as medical treatment, and has been long since abandoned.

7. **The Bath of Surprise** may be viewed in the same light as the former, and be likewise considered as abolished. The patient either in the dark or blindfolded was conducted along a passage, at the end of which was a plunge bath, into which he fell without warning; or he was placed on a movable cover, or trap-door, which was suddenly removed, and precipitated him into a cold plunge bath. Guislain, the great French authority on insanity, in the early part of this century, minutely describes a "bath of surprise" that he prides himself on having invented, which consisted of an elaborate iron cage placed on a movable bridge, spanning a stream of water. The patient was placed in the cage, the mechanism was set going from the bank, with the result that the bridge opened, and the cage, with the patient inside, fell into the water and was dragged to the shore. This, he gravely states, he prefers to the plan which had been previously adopted, of either dropping the patient into a net placed under water, or the more primitive one still of dragging him through a river by means of ropes attached to his person.

The object aimed at in these "baths of surprise" was to give as intense a shock to the system as possible, short of causing permanent injury, and it is easy to conceive that such a severe shock would have a very powerful effect, either for good or ill, and that before the somatic origin of insanity was recognised, the very severity of such a shock might be thought to possibly have a permanent moral result, and cut short an outbreak of excitement. But recourse to their use could not be defended in the present day.

8. **Suffusion of Tepid and Cold Water from Pails.**—The patient is placed to sit in an empty bath, and first a pail of tepid water of between 80° and 90° poured over his head and shoulders, followed immediately by a pail of cold water. The shock thus given to the system is very slight, and may be rendered still slighter by pouring the water over the shoulders alone, leaving out the head. It is, therefore, well adapted to the treatment of timid melancholics, idiot children, and cases of melancholia attonita, with very depressed systems and feeble circulation.

It should be given immediately before bedtime, and the patient then rubbed well with warm dry towels, and at once placed in bed, and should be repeated nightly for two or three weeks. With patients who are habitually wet at night, this mode of treatment, if persevered with, often has the happiest effect in curing the bad habit.

But the cases most benefited by it are patients with acute primary dementia, whose symptoms are marked by great mental exhaustion, who sit apart all day moping in a corner without moving or speaking, with blue hands, and feet of icy coldness, with foul breath and coated tongue, and obstinate constipation. In such cases the suffusion of tepid and then cold water twice daily in the gentle manner already described, appears to give sufficient shock to the system, to cause enough reaction to take place to set the vital action going again, without unduly alarming the patient, or exhausting the already greatly enfeebled frame. Such cases often steadily improve under such treatment.

9. **The Douche** is a form of bath in which the patient is subjected to a stream of water directed on some part of his body through a hose or pipe acting from a longer or shorter distance. In its application to the treatment of the insane, the head or spine are the points usually submitted to the douche, the water falling from a height, and the greater or lesser severity of the bath being due to the measure of height from which the water falls, and the diameter of the pipe from

which it is emitted. If the douche is used only for a short period of, say, thirty to sixty seconds, and the nozzle of the pipe is held within a few inches of the head, it is a decided tonic, and if applied in a similar way down the course of the spine, it has a stimulating effect in cases of cerebral anæmia and melancholia *avec stupeur*.

But if the douche pipe is held at a height above the head, and is from one to two inches in diameter, the shock produced is very great, and faintness, vomiting, and intense physical depression rapidly result, accompanied by shivering and a blanched skin. Carried out to this extent the douche has been chiefly used and recommended in cases of raving mania, with cerebral congestion, occurring in the very strong and healthy. But it is not now much resorted to, and those with whom it once found favour admit that it owed its efficacy to the shock it produced, and that it acted morally as a means of repression. In other words, that it was looked upon by the patient with dread, and was viewed by him as a punishment, and that, therefore, the more severe the bath, and the more intense the shock produced, the greater was likely to be the moral effect resulting.

Thus used, it was a very favourite remedy for the raving lunatics of that day, with the older writers on insanity, and its forms of application were numerous. The German physician Jacobi, fixed the patient in a coercion chair, whilst buckets of water were poured from a height on to his head. Guislain placed the patient in a bath with a cover, through a hole in which the head was protruded, whilst water from a pipe fixed from 6 to 12 feet above him, was directed on to his head. Schneider and Morel shaved their patients' heads, and placed them under an intermittent stream of water, which fell drop by drop on to the bare scalp, and Dr. Willis invented a douche of surprise, which consisted of a bucket of water suspended on a pivot, which without warning to the patient, suddenly tilted over.

Such means are now never resorted to, and have died out, as the forms of insanity owing to, or at all events concurrent with, the abolition of restraint, have become less severe, and the mode now adopted, is to have half-inch cocks fitted to the hot and cold supply pipes of an ordinary bath, to which are attached three or four feet of elastic hose. The patient is then placed in the bath, either standing up or sitting, as the head or spine is the part to be operated on, and the stream from the nozzle of the hose directed against it. This arrangement admits of an easy appli-

cation of the douche from any moderate height, and for any period of time, and of the alternate use of hot and cold. Thus used it is mild and soothing, and stimulating, and may be prescribed for the most feeble and timid melancholiac, to which class of cases it is best adapted, and in whom its healing results are most marked.

10. **The Shower Bath** is in reality a modification of the douche, being the douche delivered through a rose, so as to form a shower of water. It has been, and still is, most extensively used in the treatment of the insane, and it has this advantage over an ordinary cold bath, that though water is uninterruptedly applied to the whole surface of the body, still as the same water does not remain in contact with the body as in the cold bath, its purity and temperature are not affected. Therefore, both the primary shock and depression, and the secondary reaction are greater, and the physiological effect of the cold water is consequently more powerfully developed. Such being the case, it is evident that a prolonged shower bath of any duration is a very powerful agent and should only be used with great care and judgment.

Formerly, shower baths of twenty to thirty minutes' duration were in constant use, but the death of a patient in the Surrey County Lunatic Asylum, in the year 1856, following on a shower bath of twenty minutes' duration checked the practice, though it was by no means proved that the bath was the cause of the death, and the Commissioners in Lunacy issued instructions restricting their use in lunatic asylums. Three minutes was considered by them to be the extreme limit to which a bath of this description should extend. Even that duration now is seldom resorted to, and the following description of the bath given by Dr. Campbell, as being in use at the Carlisle Asylum, gives a clear idea of the present practice in this respect. The bath is a closed wooden frame, "26 in. in diameter inside; height from floor to roof $9\frac{1}{2}$ ft.; the perforated zinc plate through which the water falls being circular, and 14 in. in diameter. The total quantity of water which falls into the bath during a minute is nine gallons." This exhausts the cistern, and the bath cannot last longer than one minute. An inspection window of thick glass is inserted into the framework to enable the effect on the patient inside to be watched, and in asylums, the door to the bath should have a lock, the key of which should be retained by some responsible officer, to guard against the shower being put to improper purposes by attendants, who have been

known to employ it as a means of punishment. They can be made even still less severe by having an arrangement of hot and cold supply to the cistern, so that the temperature may be moderated, and by having a foot bath fitted to the bottom of the bath, in which warm water can be put for the patient to stand in, during the administration of the shower.

Thus used, only the tonic effect of cold water is obtained, but it is very fully and efficiently obtained, and is generally succeeded by a feeling of exhilaration and vigour.

It is therefore beneficially prescribed in the various adynamic forms of insanity, and in hysterical mania, and should be given every morning for a week or fortnight, either fasting or one hour after the first meal.

It must be followed by very vigorous rubbing with rough towels or flesh brushes succeeded by a little gentle exercise.

11. Packing in the Wet Sheet has always held a prominent place in the armamentarium of hydropathic establishments, and is one of the chief modes of obtaining the sedative effects of cold water resorted to by practitioners in hydropathy.

It is said to have been invented about fifty years ago by Priessnitz, a Silesian peasant, who gained a great reputation by treating disease by means of cold water variously applied, and who largely used the wet pack. It was first introduced into the treatment of the insane in the year 1860 by Dr. Lockhart Robinson, at the Sussex County Asylum, and has been in use, more or less, there and elsewhere, ever since. Its advantages in the treatment of insanity are not universally admitted, but those who have used it most are unanimous in their opinion that it is a valuable addition to their means of treating certain forms of insanity. There can be no doubt, however, that in using it in the treatment of the insane great care has to be observed in its prescription, or it may degenerate into a punitive agent, and it may easily be regarded as such by the patient, instead of being used and viewed in its recognised and legitimate therapeutical aspect.

This possible aspect of the case seems to have impressed itself so strongly on the Commissioners in Lunacy that in the year 1872, after it had been in use in asylums for twelve years or more, in order to guard against its abuse they issued an order that each instance of packing and its duration should be recorded in the *Medical Journal*, and under the head of "Restraint." The *Medical Journal*

is a statutory book required to be kept by the medical officers of asylums and licensed houses under the provisions of the Lunacy Acts, one of the requirements of which is that all instances of "restraint" shall be entered in this book in a separate column, under the head "Restraint," giving the sex, Christian name, and surname of each patient restrained, when, and for what periods and reasons, and also the means of restraint employed.

The section further provides that "any medical officer omitting to make such entries, or any of them, shall for every such offence forfeit any sum not exceeding twenty pounds."

Packing in the wet sheet is carried out as follows: A mattress is placed on an ordinary stretcher, a piece of mackintosh is laid over the mattress, and on this is spread a blanket. A common sheet, which has been previously placed in a bucket of cold water standing by the bedside, is gently wrung, and then spread out on the blanket. Next, the patient is denuded of all clothing, and laid on his back in the wet sheet, which is at once rapidly folded round him, carefully including the arms in the folds of the sheet.

The blanket is then tucked round the body, and two or three blankets laid over all. Should the patient be very violent and struggle much, two or three blankets may be spread on the mattress *before* the mackintosh, then the mackintosh, then another blanket, and then the wet sheet. And if all these various wraps are carefully folded alternately over the body by a skilful manipulator, the patient will not easily wriggle out of his environments.

The mackintosh sheet is not an essential part of the operation, but is used as a precautionary measure when treating the insane with this process, because the pack greatly excites the action of the kidneys, and promotes the flow of urine, thereby causing at times involuntary micturition. It is, therefore, advisable that the blanket over the mackintosh, for obvious reasons, be an old one.

It would not do to place the mackintosh next below the wet sheet without the interposition of a woollen material, because such an arrangement would soften the skin, and tend to bed-sores.

At the expiration of an hour the patient should be taken out of the pack, and first the contents of a pail of tepid, and then of cold water, poured over him, and he should finally be rubbed thoroughly with hot towels.

If the physique of the case under treatment is not considered equal to the affusion of the pails of water, a milder method

can be resorted to by rubbing the body with a damp sheet, followed by dry ones.

Whilst this is being done, the wet sheets and blankets should be removed and replaced by a fresh wet sheet and blankets, and the patient packed in them as before.

When the patient is at first placed in the wet sheet there is usually a little shivering, but this rapidly passes off as the blood is determined to the skin, and the heat from the body gradually warms the sheets. So that at the end of the hour, when the patient is released, the sheet is found to be quite dry, and the surface of the body in a glow, and frequently perspiring freely.

The effect of water thus applied would appear to be both sedative and eliminative. By reducing the temperature and steadying the circulation, it has great power in soothing irritation, lessening excitement, and thus inducing sleep; and the best authorities on the subject view this sedative effect as its most important factor in the treatment of the insane; for, under its influence, the most noisy, excited lunatic sooner or later as a rule becomes calm, and drops into a refreshing sleep; and even though the worst cases may relapse into partial delirium when they awake, still sleep, "tired nature's sweet restorer," has had an opportunity of refreshing the worn-out frame, and of breaking the habit of insomnia.

In its physiological action, the wet sheet would appear to have considerable eliminative powers, as both the alvine and urinary excretions are increased, in addition to the marked action on the skin. Thus, cases are recorded in which the flow of urine has been doubled in the twenty-four hours, and accompanied by copious evacuations from the bowels. As regards the reduction of temperature, the same observer states that it is almost invariably slightly reduced by packing. Thus, the healthy persons selected for the purpose of the experiment, who were packed for one hour, lost on an average one degree each, one losing as much as two degrees, whilst with two the temperature remained much as before the packing. As regards the soporific qualities of the pack, they would seem to be due to the fact that the blood being determined to the surface, the brain shares with the other internal organs in the abstraction of blood, and thus its congested condition is relieved, and an anæmic condition provocative of sleep induced, which is doubtless increased by the check put on the movements of the patient by the folds of the sheet and blankets in which he is wrapped.

The forms of insanity most likely to benefit from wet sheet packing are acute sthenic mania and recurrent mania. In the former, in which the physical symptoms are a dry hot skin, dilated pupils, a dry tongue with brown streaks down the centre, mouth and lips covered with sordes, and a full, rapid, bounding pulse, obstinate constipation, and retention of urine, accompanied by insomnia and a noisy delirium, and possibly extreme violence, the pack is of great therapeutical value. Under its influence the flow of urine increases, the bowels act, the skin becomes moist, and finally sleep is induced, whilst in the intervals of the packing the patient often readily takes food, though he may previously have been obstinately opposed to it.

In these cases, if they come under treatment in the early stages of the attack, and before the body has become exhausted by the constant delirium, the packing may safely be prescribed for from eight to twelve hours at a stretch, the wet sheets being renewed every hour, as already described; and though in obstinate cases the benefit may not be apparent whilst the patient is in the pack, it frequently asserts itself after the patient has been placed back in bed.

But in those cases wherein the attack has been prolonged, and symptoms of a typhoidal nature, with exhaustion, become, as is often the case, developed, it is necessary to proceed with more caution, and to carefully examine the physical condition between each pack, especially as to the state of the circulation. In all cases it is well to give a little liquid nourishment and an occasional stimulant, and also to place them on the night-stool after every other pack.

In recurrent mania the physical symptoms above alluded to are usually absent, whilst the violence, noise, excitement, destructiveness, and dirty habits are as great, or nearly so. In these cases, which in their nature are more intractable, the most benefit would seem to be derived from the pack by using it daily for four hours, twice in the morning and twice in the afternoon, for a week. The more urgent symptoms are frequently moderated thereby, the duration of the attack lessened, and the drain on the system minimised.

With ordinary care there would appear to be not the slightest physical risk in prescribing this mode of treatment in the above class of cases, whilst the general and mental amelioration is often very great. But it would seem to be contra-indicated in the mania of general paralysis

and of epilepsy, in melancholia, and in acute primary dementia, having no effect in the two former, and rendering decidedly worse the two others. It should not be used immediately after a meal of solid food, or during the menstrual period.

12. **The Dry Pack** has had but a limited use in the treatment of the insane, although much resorted to in general nervous affections by practitioners in hydropathy. Its mode of application and the rules to be carried out in its use are essentially the same as in the wet pack, except that no wet sheet is used. Although, therefore, the absence of the wet sheet renders the immediate shock less great, still the ultimate result is more exhausting, and both the temperature and the circulation become reduced. This would seem to be due to the fact that the reaction always following the application of the cold water in wet packing is absent, and also because the sudation is more intense and more prolonged, patients subjected to it perspiring so profusely as to wet the sheets through and through. It does not, however, seem to have the same soothing effect on the external sentient surface of the body as the wet pack, and instead of allaying nervous irritation, in some cases has a directly opposite result.

It has been chiefly used in cases of acute suicidal and homicidal mania, where the object is to restrain the movements of the patient, whilst at the same time to some extent producing the therapeutical effect of the pack on the circulation and the nervous system, without the immediate shock sometimes given to a morbidly excited organism by the impact of the dripping wet sheet, which shock is not felt by a patient the subject of acute delirium.

13. **The Mustard Pack** has been only occasionally employed in the treatment of the insane, so that the data as to its advantages are but few.

The late Dr. S. Newington was, we believe, the first physician to recommend it. He argued that, given the fact that sleep is induced by the abstraction of blood from the head, causing a state of anæmia of that organ, any remedy that would bring this condition about by artificial means would be of great value in cases of insanity attended by insomnia, and would do away with the necessity for narcotics. This remedy he believes he found in the power of mustard to stimulate the skin and to increase the circulation through its capillaries, thus lessening congestion of internal organs. In applying this remedial agent, the whole body is not enveloped in the pack as in ordinary wet

sheet packing, but only the abdomen, and possibly the legs. Two handfuls of crude mustard are tied in a cloth and placed in hot water, and then squeezed. A towel, long enough to go round the body, is wrung out of this infusion, wrapped round the body, and covered with mackintosh. Or a poultice of linseed meal and mustard may be the vehicle employed, the strength being one of mustard to ten of linseed meal. The sensitiveness of the skin varies so much in different individuals that no rule can be laid down as to the length of time during which these applications may be continued. It may range from two hours to twelve.

14. **Hot Air (Turkish) Baths.**—Sudation of the body by means of hot air as a variety of the bath has been employed by most of the nations of the earth, and its origin is lost in a remote antiquity. The Phœnicians, according to Homer, were acquainted with the restorative powers of the warm bath on a body exhausted by fatigue, and used it with that object, which is probably the first record we have of the bath being employed for therapeutical purposes. In Mr. Urquhart's book on "The Lebanon" he gives an account of the discovery of a crypt, with traces of a bath with a hot air chamber, amongst the ruins of the ancient city of Baalbeck, thus confirming the opinion that this variety of the bath was known to and in use amongst the Phœnicians.

The Lacedæmonians employed the hot air bath as a part of their system of training in their gymnasia, and that portion of the bath called the *laconicum*, was invented by and named after them. The Athenians also had large public baths, and the accounts given of the Baths of Darius show that the Persians, long antecedent to the period of that potentate, must have possessed luxurious and well-equipped baths. Sir Erasmus Wilson propounds the idea that hot air and vapour baths had their origin in the natural thermal springs that are to be found in all parts of the world. Hence the derivation of the word *Hamam* as a designation of a vapour bath, the word signifying thermal spring. Traces, especially in the East, have been found and still exist, showing that these hot springs have, in some instances, been enclosed and built over. That this natural mode of obtaining heat was also resorted to by the Romans is clearly proved by the *aquae solis* of Bath, and the myrteta of Baiæ.

In Mr. Gent's "History of Virginia" he relates that the aboriginal Indians and Mexicans employed a rude species of hot air bath mixed with steam for the pur-

pose of producing profuse sudation, deriving their heat from red-hot stones placed on a stove in an almost air-tight chamber, and on which water was from time to time thrown to form steam. Dr. Houghton and Mr. Urquhart also both state that the Celts of Ireland had *Tig Allui*, or sweating houses, which were used for the cure of rheumatism and other purposes, and which were heated in the same primitive way, or else by burning wood and then raking out the ashes as in heating a baking oven. It may therefore, be inferred that, hot vapour baths, having their origin in the utilisation of the heat from thermal springs, the next step was the manufacture of hot air and steam in some such primitive modes as those employed by the Celtic Irish and the American Indians, thus rendering the bath independent of situation. The third and final step in the perfecting the bath was the invention of means of keeping the heat at a uniform temperature, by the discovery of furnaces and flues placed below and around the hot chamber. The furnace so arranged was the so-called *hypocaust* of the Greeks. It is the chief essential of the air bath and remains so to this day, any other amplifications being simply details, or additions made to meet the advancing luxury of succeeding ages. It was left to the Romans, who introduced the idea of public baths from Greece to bring the bath to its greatest perfection both of utility and luxury. In the early part of the century B.C. the tribune P. Clodius finally improved the water supply of Rome. This gave a considerable impetus to the erection of public baths, and in the latter part of the same century Mæcenas and Agrippa instituted the practice of erecting baths at their own expense and presenting them to the city, an example subsequently followed by many of the great emperors and dictators of Rome. About the same time they also became common in the other chief Italian cities. And, indeed, wherever the advancing tide of Roman conquest flowed, there the bath sprung up and flourished. So that the conquest of Great Britain by Julius Cæsar saw its introduction into these isles, and wherever remains of Roman settlements are to be found there also are traces of their *thermae*, as at Gloucester, Shrewsbury, Cirencester, Chester, &c., most of the villas of opulent Romans having baths attached to them.

The public Roman hot air bath consisted of a series of rooms, each devoted to its own special purpose of the bath.

There was 1. the *apodyterium*, *vestiarium*, or *spoliatorium* used for undressing and dressing, and fitted accordingly.

2. The *aliptherium*, or *unctarium* for anointing the bathers.

3. The *tepidarium* moderately heated, so as to prepare the bather for the next chamber.

4. The *calidarium*, which was placed immediately over the furnace (*hypocaust*), and in which therefore the highest temperature was experienced, and which contained also an inner recess curtained off, and called the *laconicum*, wherein the temperature was even higher.

5. The *lavatorium* fitted up with the means for washing and cleansing the body after the sudatory process of the *calidarium*.

6. The *frigidarium* or dressing-room, fitted with hot and cold douche, shower and plunge.

Of these, the *frigidarium*, the *calidarium*, or hot air chamber, with its *laconicum*, or hottest portion, separated by a curtain, and the *lavatorium*, or washing-room, are the actually necessary parts to be provided in every modern air bath.

The *frigidarium* is necessary both for dressing, and for rest and cooling after the bath, and requires a free current of air from the open window with sunshine when it can be had. It may be fitted with couches after the fashion of the *dureta*, or reclining couch of the Romans, which has been aptly described as an elongated W, and with other luxuries according to taste. The *lavatorium*, or washing-room, may with advantage open from the dressing-room, and be the passage between it and the hot chamber. It should be tiled, and supplied with a drain to carry off the waste water, and with douche pipes of several diameters, supplied with hot and cold water.

The *calidarium*, or hot air chamber, should have an arrangement of furnaces and flues by means of which it can be heated to a temperature of 225° at least, and it should be well ventilated, that is to say, it should have an arrangement for the ingress of fresh air and the exit of vitiated air sufficiently active to keep the air fresh, but not to unduly lower the temperature. It may be conveniently floored with unglazed tiles or bricks, it should have a couch or two, and means for adding occasionally a little watery vapour to the atmosphere, so as to keep the wet bulb thermometer well down.

The various processes of the bath, when Rome was in her decadence, were very elaborate and took up much time, so that they probably became a source of idleness and enervation. They were afterwards carried out in a similar manner in the baths of Turkey and other eastern nations.

But, given the threefold division of the bath as just described, the processes may be simplified to the following, and yet its cleansing and health-giving results obtained.

The bather divests himself of all clothing in the dressing-room (*frigidarium*), he places a towel (the Turkish *cummerbund*) in the form of a kilt round his loins (or in females a light cotton chemise can be used) and puts his feet in sandals and steps through the *lavatorium* into the hot air chamber (*calidarium*) where he reclines on a wooden or marble couch, protected by towels, until he is in a profuse perspiration. The time taken in arriving at this state varies from ten to thirty minutes and the temperature required may range from 120° to 250°, the best authorities being agreed that, especially with beginners, the most benefit will be derived, and the least harm likely to arise, by using the lowest temperature that will produce the necessary sudatory action. Dr. Lockhart Robertson writing on this point, records some experiments made on himself and on some of his patients, at different temperatures from 120° to 180°. He arrived at the conclusion that in a thoroughly ventilated bath with a due supply of moisture, a temperature of 145° was the most uniformly efficient. A high temperature doubtless causes an unnecessary excitement of the circulation, whilst in a low temperature the action of the skin is so slow that the patient gets wearied of sitting, and restless.

The bather now returns to the washing-room (*lavatorium*), where he thoroughly washes himself, or is washed, with soap and hot water, and finally submits himself to an affusion of cold water from a douche or shower, which is stated to be a necessary termination to the bath, as it closes up the pores of the skin opened by the sweating process, and prevents any liability to catching cold. He should now rest quietly in the dressing-room until he is thoroughly cool. Sometimes, in beginners, slight palpitation, or a sensation of oppression or faintness, may be felt just before, or immediately after, the commencement of sweating. Should such occur, the bather should at once retire into the cooler room until it passes away, when he may return to the hot chamber, and continue his bath. If, after ten minutes or so, perspiration does not start, a little cold water should be sipped, or the skin gently tapped or flicked with a towel, when the desired effect will in most cases be produced. Or, with a like object, in cases submitted for the first time to the influence of the bath, affusion

of tepid water may be practised before entering the *calidarium*. In addition to the above, the Romans anointed themselves with oils and unguents (*smegmata*) at various stages of the bath, in some cases before, and in others after, the preliminary process, their mode of procedure being uncertain in this respect. For, whilst Celsus recommends that the anointing should be made between the *tepidarium* and the *calidarium*, Galen, on the other hand, in the description of the bath in his *Meth. Med.* directs that the last process of the bath should be that performed by the *Aliptae* in the *unctarium*.

The nations of the East added shampooing to the various processes of the bath, and in Turkey and Egypt a bath would not be considered complete without an elaborate shampooing.

On the introduction of the Turkish bath into England, about the year 1857, by the erection of public hot-air baths, shampooing was adopted as part of the process; but, as it can only be efficiently performed by skilled manipulators, trained for the purpose, it has to be omitted in private baths; and, although doubtless efficient in the treatment of certain forms of disease, and as a restorative after prolonged muscular exertion, it is by no means an essential of the bath, and in many cases of insanity, if used, would probably be more alarming than soothing.

The revival of hot air baths in the years 1855-60, was quickly followed by the institution of experiments as to their practicability and utility in the treatment of the insane. Dr. Power built one at the Cork District Asylum, and Dr. Lockhart Robertson, in the year 1860, constructed another at the Hayward's Heath Asylum, which probably has never been exceeded for simplicity, economy, and efficiency. A short description of it may therefore be useful. It was built as a lean-to to the laundry drying-closet, so that the chimney-flue and stoke-hole were constructed to hand, and only two walls out of the four had to be erected. The entire building was thirty feet long by ten wide, by ten high, sloping to nine, and was divided into the three compartments (dressing, washing, hot air) necessary for the various processes of the bath, each being lighted by a window. In the hot-air chamber the window of thick ground glass is a fixture, and the fresh air was admitted by one of Sherringham's ventilators fixed in the upper part of the north wall, whilst the foul air was extracted by a soot door in the ascending flue.

A wrought-iron radiating furnace,

arranged so as to be stoked from the existing stoke-hole, was connected with a flue which extended round the four sides of the room, and up the wall into the chimney of the existing drying-closet. The centre of the chamber was paved with tiles. By placing a curtain across the upper part, and next the furnace, a *laconicum* was easily procured. The outer walls and sealed roof were hollow and lined with sawdust. A copper tank in one corner gave a constant supply of hot water, and helped to relieve the dryness of the hot chamber.

The washing-room was sunk a foot lower than the hot chamber. It was lined and floored with white glazed tiles, and supplied with a drain and grating to let the waste water off. It was also fitted up with a shower-rose, a one-inch douche pipe, supplied with hot and cold water and with a cold two-inch douche. The third room served as an entrance and dressing-room. The cost of the whole was under £50, and eighteen-pennyworth of coke heated it. The description of this bath is thus minutely given, because it demonstrates for how little a sufficiently efficient bath-house for medical purposes can be constructed. It exists but little altered to this day, and is in weekly use.

Shortly after this bath was opened, a more elaborate one was built at the Colney Hatch Asylum under Dr. Shepard's auspices. Many asylums, both public and private, now contain them, the most recent being one erected by Dr. Baker at the Retreat, York, at an outlay of £1400. It is very complete in its arrangements, and contains provision for hot air baths, vapour baths, packing, shampooing, &c. &c. At one or two asylums, as the Denbigh, attempts have been made to employ it for the weekly or bi-weekly washing instead of the ordinary warm bath; and as it is not so many years ago that the theory was very generally held that a peculiar odour emanated from the sebaceous follicles of the insane, if such were the case, this general use of the Turkish bath in asylums should be a most efficient remedy, but the difficulties in the way are great, and its use is generally restricted to the purposes of medical treatment.

Moreover, with the introduction into asylums of improved sanitary arrangements, of a more regular system of daily or bi-weekly washings, and a more frequent change of linen, this supposed insane odour has disappeared.

Employed as a therapeutical agent the hot air bath would appear to have considerable value in the treatment of certain

forms of insanity. Its advocates claim for it that it promotes the action of the skin, and keeps it in a healthy condition, thus relieving the internal organs of their superabundant load; that it increases waste of tissue, and thus promotes the desire for supply, thereby improving the healthy nutrition of the body; in other words promotes appetite, and improves the powers of assimilation, and so renders the lean fat, and the fat lean; that by its power of increasing the excretory action of the skin, it is enabled to eliminate from the blood the morbid products of such diseases as rheumatism, gout, Bright's disease, and dropsical effusions, and to set up a more healthy action in the system generally; and that it has a specific power in checking the night sweats and hectic of tuberculosis.

It therefore naturally follows that the forms of insanity in which its use has been attended with the greatest success are those whose causation is more or less dependent either on the physical conditions just enumerated, or on defective nutrition.

The chief of them are as follows:

1. Cases of incipient dementia occasionally supervening on attacks of acute melancholia or mania, in whom the functional action of the chief nervous centres, and of the great eliminating organs has become torpid.

2. In dementia occurring in elderly persons, often due, as Dr. Baker points out, to a gouty diathesis.

3. In dementia following sunstroke cases are recorded in which it has been of benefit.

4. In melancholia, especially in females, with refusal of food, hot dry skin, coated tongue, steadily advancing emaciation, great nervous depression and suicidal impulse. In these cases under the influence of the bath, the refusal of food departs with the increased activity imparted to the central organs by its action, healthy nutrition results, and weight is steadily recovered.

5. The noisy, restless, paroxysmal, periodic mania attending phthisical insanity is decidedly more or less subdued, the restlessness at night is lessened, and the life prolonged.

6. Dr. Baker claims for it that it is useful in the treatment of insanity due to alcoholic excess, to the chloral and morphia habits, and to lead poisoning, owing to its power of eliminating noxious and poisonous matters.

7. The same physician considers it a powerful curative agent in the treatment of puerperal mania. Dr. Lockhart

Robertson also records its use in similar cases.

On the other hand, in those forms of insanity in which there is great waste of tissue going on, such as in acute delirious mania, the acute mania of progressive paralysis, and the periodic mania of epilepsy, the hot bath would often seem to be positively injurious, and should be given only with great caution.

When used in the treatment of insanity the following precautions should be observed. One bath should be given the first week, three during the next fortnight, and then two or three a week for two or three months. An attendant should be closely on the watch to note any appearance of faintness, and to see that the patient does not burn himself by coming into immediate contact with the heated sides, floor or seats, for which purpose it is well to have a glass window in the door of the *calidarium*, or better still an attendant in the chamber. The temperature of the first two or three baths should not exceed 135°. If, as is sometimes markedly the case with the insane, especially in melancholia attonita, perspiration does not start after twenty minutes' exposure, it is well to take the patient out, wash him with hot water, and defer the bath to another day. The second or third attempt seldom fails, for by degrees the skin seems to be trained to the habit of perspiring, as is shown by the fact that habitual bathers perspire much more quickly and freely than novices. In melancholia it is advisable not to use too powerful a douche pipe, or much affusion of cold water, in dementia on the contrary the shock of the douche is often beneficial. In some constitutions the hot air has the effect of causing the hair to fall off, or the skin on the face to become disfigured by acne. In the presence of such idiosyncrasies it should not be persevered with.

15. Vapour (Russian) Baths.—In these baths the body is submitted to the action of steam in a closed chamber. The temperature must depend on the amount of air mixed with the steam. If the atmosphere be thoroughly charged with watery vapour it must not exceed 120°, as beyond that the steam would scald, but in proportion as air is mixed with the vapour so may the temperature be allowed to rise with impunity. That, however, is not the object aimed at, but rather to thoroughly fill the chamber with vapour. They do not produce such profuse sudation as hot air baths, and are therefore less exhausting to some persons. In others, on the contrary, owing to the deposit of moisture in the bronchial tubes

attendant on respiring the steam they cause difficulty of breathing, cardiac excitement, and a tendency to syncope. They are stated to have the power of heating the blood more than hot air owing to the steam enveloping the body and thus checking radiation of heat from its surface. They should be followed, as in the air baths, with soaping and washing, affusion of cold water, and temporary rest in the prone position.

It is not claimed for them that they have any special applicability in the treatment of insanity, though in cases complicated with rheumatism or dropsy it can easily be conceived that they might be beneficial. But they may be tried, and have been occasionally found useful in cases where the hot air bath does not seem to suit, or produces alarm, or does not readily cause sudation. For though sudation is not so profuse, it is more easily induced, and is of a less exhausting nature, and the whole process is less complicated and formidable.

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BATOPHOBIA (*Barós*, that which is accessible, and hence a height; *φόβος*, fear). A morbid fear of heights. A condition analogous to Agoraphobia, Amaxophobia, &c.

BATTARISMUS (*Barrapízω*, I stammer, or prate idly, from *Bárros*, a king of Cyrene, who was afflicted with stammering). Stammering, stuttering, or speaking with any degree of hesitation; a com-

mon phenomenon both in mental health and disease when under deep emotion. The term is also employed for the babble of an imbecile or senile dement.

BDELYGMIA (*Βδελυγμία*, a loathing or abhorrence). An old term used by Hippocrates for a morbid loathing of food.

BEARDED WOMEN.—So far as is known very few cases have been recorded (see *Journal of Mental Science* vol. xxiii. p. 86), and they are chiefly of interest on account of their rarity. Amongst women of all classes a moderate development of hair on the face is frequently seen, and after the climacteric it may be sufficiently marked to attract attention and thus to cause much annoyance to the person so disfigured; but it is most unusual to find, especially in young women, such a development of facial hair as is represented in the illustrations which accompany the clinical note referred to.

Case 1.—When admitted into an asylum she was 23 years of age, unmarried, and had been employed as a housekeeper to her father. She was suffering from her first attack of insanity, acute mania, and in this condition she continued for years, though at times somewhat depressed. She was of average height, pale, and rather emaciated. Her general health was fair; the circulatory, respiratory, and digestive systems were normal. Her relatives stated that she menstruated regularly. Her features were good, quite feminine in character, but the expression was wild. She had a remarkable deformity, which she appeared most anxious to conceal—a well developed beard. She had also whiskers and moustache, but they were less marked. The hair was black, and almost quite straight; fine, but not more so than is frequently observed on men's faces. It varied in length, according to situation, being longest on the chin and shortest on the upper lip. In the former position the average length was between two and two-and-half inches.

A hereditary tendency to insanity existed, and one of her sisters was insane. She continued in a state of mania, but was as a rule quiet unless interfered with, and was industrious. It appears probable that her tendency to insanity was increased by the teasing she suffered at the hands of her neighbours. The hair began to grow on her face shortly after puberty and caused her the greatest vexation.

Case 2.—When admitted she was 26 years of age, a widow, the mother of three children. It was supposed that her illness was caused by fatigue and anxiety connected with the fatal sickness of her

husband, she being pregnant at the time. It is, however, more probable that it was due to her confinement, which occurred almost immediately after her husband's death. Three days after the birth of the child she became depressed, was described as "stupid and lost," and frequently said that she had no chance of being saved. There was hereditary tendency to insanity: her father died, at the age of 56, of chronic brain disease, probably apoplectic softening. She was one of eleven children, in none of whom, except herself, was there any physical or mental peculiarity. She was reported as always having been a merry, cheerful young woman; and as having shown little annoyance at the unusual growth of hair on her face. She generally kept it short by shaving or cutting.

As to her subsequent history it is enough to state that she gradually drifted into a mild form of dementia, and in the course of a few years died of phthisis.

Her physical development was womanly in all respects, except the beard and whiskers. These were arranged very much in the same manner as in the first case, the hair being longest and strongest on the chin, and short and fine on the upper lip. It was light brown in colour and somewhat curled. Some of the hairs removed from the tufts of the chin measured nearly three inches.

The above cases are excessively rare, and are, as already said, believed to be among the few on record as occurring in insane persons. According to Michelson they may be classified under the first subdivision of hypertrichosis localis—the abnormal pilosis of a region the skin of which is apparently unchanged. Bartels distinguishes three degrees of anomalous trichosis confined to isolated parts of the skin as is found in the occurrence of beards in woman: First, the so-called "Bärtchen" of young women, in fact, merely a somewhat stronger growth of the lanugo which is always more developed in the situation of the beard than elsewhere—the upper lip, the masseter region, at times the chin. In the second degree, hair likewise sprouts from the regions typical of the male sex, but those affected are generally beyond the climacteric period and have previously shown no very pronounced tendency to the development of a beard; many of them incline also in other ways (deep voice, large bones) toward the virile habit. The several hairs are generally thick, bristle-like, but not very close together. Finally, the third degree is the rarest: actual beards occur in woman of every age, of

course by preference again in such as are past the bloom of youth. In this category belong, among others, the well-known case related by Beigel, of a Swiss woman aged twenty, in the fifth month of pregnancy, who presented herself in 1852, with a goatee and moustache four inches in length, at a London hospital, in order to obtain a certificate as to her sex (Michelson).

A few years ago there was a lady patient in Bethlem Hospital with a beard, labouring under profound melancholia. This was associated in her mind with the idea that she had become repulsive to her husband on account of her facial appearance. Dr. Savage, under whose care she was, asked Dr. Radcliffe Crocker to see her, who decided that it was possible to remove the hairs and destroy the bulbs by galvanism. As the offending growth was removed she gradually improved, and when after many sittings 900 hairs were abstracted, she so far recovered as to go home on trial, and not long after was discharged well. Depilation was regarded as the means of cure (vide *Jour. of Ment. Sci.*, July 1886).*

In the discussion on the paper on this case read by Dr. Savage before the Medico-Psychological Association, Dr. O. Wood mentioned the case of a young woman, in which the removal of an abnormal growth of hair on the face had been followed by recovery. Dr. H. Sutherland reported two similar cases, one of whom thought she had got her beard from another lady. He showed the photograph of a woman perfectly sane, who had a beard four inches in length. Dr. Hack Tuke said he had seen in an American asylum a lady with a large beard and moustache, and she had once been in Barnum's show and was called the "Circassian Lady." Dr. Tuke saw a woman in the Norfolk County Asylum, of whom he has shown the writer a photograph, with a large beard and moustache. She was erotic with persons of her own sex, and an examination revealed an enlarged clitoris.

T. W. McDOWALL.

BED-CASE.—A name given to those hysterical patients who, for no organic cause, persistently keep their beds. (See HYSTERIA.)

BEDLAM.—A lunatic asylum, a corruption of Bethlehem or Bethlem (*q.v.*), the name of a religious house in London converted into a hospital for lunatics.

BEDSORES.— Under the head of "Bedsores occurring in the Insane, or

* Since this article was written a similar case has been reported by Dr. Finlay (Perth Asylum) in the *Jour. of Ment. Sci.*, July 1890.

Asthenic Gangrene," Dr. Bucknill gave, in *The Asylum Journal*, 1855, p. 55, a practical paper, pointing out that while, under an improved system of treatment, bedsores had become much less frequent, they still demanded careful attention and proper treatment in all asylums, cleanliness being the great preventive. Dr. Bucknill insisted that the true bed sore of the general paralytic is very different from that of the idiot, whose sore arises from irritation and neglect, and too often (in former days) from instrumental restraint. It is, on the contrary, "a true mortification, with symptoms resembling those of the dry gangrene of the aged, the bedsores of typhoid patients, and more closely still, mortifications following injuries of the spinal cord. . . . In the worst cases, the gangrene of paralytics does not originate in, or confine itself to, the parts over the bony prominences. It often attacks those parts where the fleshy cushion is the thickest, as the gluteal and lumbar regions, and its severity bears an inverse ratio to the amount of emaciation. . . . A less formidable variety of gangrene is observable in the last stage of general paralysis, whose march has been more gradual in patients who have been shattered by attacks of apoplexy invading both sides of the cerebrum, and in extreme degrees of dementia. Patients in these conditions are for the most part emaciated to some extent. This variety of gangrene differs from the above in being dry rather than moist. The healing process in such cases is not uncommonly observed to be remarkably rapid. I have observed that scarification for erysipelas and other incisions made for surgical purposes generally heal in such patients by adhesion. Even when mortification is taking place on the dorsal and other regions, old sores granulate and heal with rapidity, preventing the simultaneous occurrence of the destruction and reparation of neighbouring parts" (p. 57).

As Dr. Bucknill points out, it is of the first importance to prevent gangrene in the insane by adopting proper bedding arrangements, and the same is true as regards its treatment when already developed. The recommendations given, very imperfectly practised when his article was written (including waterproof sheeting, the water-bed, &c.), are now well understood.

The writer can testify that Inspector-General Dr. Macleod, C.B., late superintendent of the Royal Naval Lunatic Asylum, Yarmouth, where the number of general paralytics was very large, succeeded in preventing bedsores or gan-

grene to a remarkable extent. He has kindly permitted us to embody his experience and mode of treatment in this article.

He observes that patients who are most liable to bedsores may be classified as follows :—

1. The aged and demented, with sufficient mind to attend to the calls of nature, but who require the assistance of the nurses to keep them clean and dry, and whose bodies are properly nourished. No credit is due to a nurse for keeping this class free from bedsores, however long they may be confined to bed.

2. The extremely demented, who have not sufficient mind to attend to the calls of nature, passing all their excretions in bed, and requiring to be spoon-fed by a nurse, but whose bodies are still well nourished. This class is not difficult to keep from bedsores, and only under careless nursing will they appear.

3. General paralytics, in a state of dementia, passing into fatty degeneration, who are unable to stand or walk, and have constant relaxations of the sphincters; they require to be spoon-fed; in a manner they are nourished, but when they get into this condition of fatty degeneration, are very liable to contract bedsores. This class will call for the constant attention of the nurse to prevent troublesome bedsores.

4. The same class of patients as class 3, but still further advanced in the disease; they are frequently under epileptiform convulsions with a high temperature, ranging from 100° to 102° , and at times as high as 105° ; during the convulsions they become semi-comatose, with diminished or no swallowing powers, and this condition lasts from a few hours to a few days.

5. The general paralytic with all the above symptoms, but (instead of fatty degeneration) with progressive emaciation, absorption of all fat, and waste of muscular tissue, until at last nothing is left but skin, tendons and bone.

6. The general paralytic, who, although he has lost motor power in the lower extremities, is yet continually restless, wakeful by day and night, destroying everything within his reach with his hands and teeth, disturbing the other patients with his shouting and the endless grinding of his teeth; if placed in a cabin he will roll himself on the floor and rub his back against the boards, thereby contracting a scratch that is easily converted into a bedsore. Add to this all the symptoms peculiar to classes 4 and 5 when during the epileptiform con-

vulsions and comatose state bullæ and vesicles form wherever there is the slightest pressure, such as the inside of the knees, lower part of back, sharp angles of scapulæ, and sooner than in any other place, the heels. Representatives of all the above classes are to be met with in most asylums. In some of the patients the bedsores form slowly. In the patients with convulsions they very often form within twenty-four hours, but in all they can be prevented, and are only the result of careless and slovenly nursing.

Classes 3, 4, 5 and 6 are all equally subject to epileptiform convulsions, high range of temperature (as already stated) during the convulsions, to the state of coma, impaired swallowing power, and weak action of the heart, and it is when the patient is in this extreme state that the medical officer and nurses require to forestall the approaching symptoms, and prevent, by therapeutic and local treatment, the formation of the bullæ and vesicles which precede the sores, and which, if not prevented, are sure to appear during the first twenty-four hours, and in some cases in a much shorter period.

What, then, can be done to prevent the convulsions, or, if that be impossible, to cut them short? And what local treatment can be carried out to assist the constitutional for the prevention of bedsores?

Preventive Measures.—In answer to the first question, it has been found, and might be shown by instances which could be quoted, that in the majority of cases epileptiform convulsions can be prevented, as they are found to be preceded by certain premonitory symptoms, such as a rise of temperature, restlessness, and impaired swallowing power. If at this stage a full dose of hydrate of chloral from 20 to 40 grs. be given, and sleep induced, the temperature becomes normal, the restlessness ceases, and the convulsions are prevented. In other cases, after the convulsions have fairly set in, they are arrested by a dose of chloral hydrate, from 30 to 45 grs., according to the previously ascertained action of the drug on the patient. Should the power of swallowing be lost, as it generally is when the convulsions are severe, a small enema of 30 grs. soon arrests the train of bad symptoms. When the enema is thrown up it will be necessary for the nurse or attendant to close the rectum with a soft towel, or in other words make pressure so that the enema may be retained and absorbed; the proof that it is absorbed is, that the convulsions soon cease. In all

these cases it is absolutely necessary that sleep be induced, without which the beneficial effect of the chloral does not manifest itself.

In consequence of chloral having a depressing action on the heart, we give it with a small quantity of brandy and water, and have never observed any ill effects from it on the circulation. Brandy in these cases does good at such a period by stimulating the nervous system and assisting the heart to send the blood to the surface of the body.

Local Preventive Treatment.—Patients likely to be confined to bed for a lengthened period were placed on a water bed, or a large square water cushion was placed under the lower part of the back.

Therefore, from the first day a patient is confined permanently to bed, it is necessary that the greatest attention be paid to him when attending to the calls of nature, and great care must be taken that his skin is not abraded by the stool or bed-pan when he has occasion to use them, for the skin of such patients becomes so tender that abrasion frequently takes place from the slightest friction. Let it be understood that we write of patients passing through a career which may last for years, but which, from its commencement until it terminates in death, is solely of a downward nature. Whenever a patient is wet and dirty, or only wet, his body linen, and all bedding that may be damp or soiled, must be completely removed, and the waterproof sheet thoroughly dried. The patient himself *must* have such part of his body as is wet or dirty sponged with warm water and gently dried, not rubbed, and if very filthy must be removed to an adjoining bed whilst his own is being prepared. This system of changing must be followed out as often as the patient is found to be wet or soiled.

General paralytics must often be packed with a sheet between the legs similarly to the way in which nurses pack babies, so as to absorb the moisture as much as possible, but the water bed or water cushion, cleanliness and dryness, are the leading facts to be attended to from time to time, the greatest care being taken that the patient is never left, for however short a period, in wet linen; if he is, bedsore will soon show.

When, from a rise of temperature, &c., a fit is known to be impending, the knees, ankles and feet should be well covered with cotton-wool, special care being used in covering well the heels with several layers, which are to be kept on until the patient returns to his usual state—that is, normal temperature.

If at any time a red patch of skin is discovered, it should be at once dressed with zinc ointment and covered with cotton-wool, the cotton-wool being kept on with flannel bandage. Cotton-wool has to be kept with some general paralytics on the knees, feet, and heels continually. The great secret as regards all patients confined to bed is the use without stint of clean, well-aired linen. Nurses should introduce their hands under the bedding from time to time to discover whether the patient is wet or dry.

On a change of nurses taking place, those coming on duty should, before taking charge, see by personal inspection that they receive their patients with a whole skin, so that should a bedsore appear the carelessness could be traced to the defaulting nurse. If an abrasion occur it should be well covered with cotton-wool. We have but little faith in any ointments; cleanliness, dryness, and cotton-wool (absorbent) being the great factors. Avoid poultices under all circumstances.

THE EDITOR.

BELGIUM, Provision for Insane in.

—In the Middle Ages, each corporation had a mode of special regulation of the current affairs. In consequence of this, there was in Belgium an ignorance of everything concerning arrangements of the *communes* with regard to the insane. We had to wait for the arrival of the reformer of our asylums, the immortal Guislain, to make a retrospective study of the way in which the insane were treated in former times. Five hundred years ago the parishes were ordered to remove the inconvenience resulting from the freedom given to certain lunatics. Our ancestors had for this purpose very efficient and radical means, which also were economically of value: *the executioner was ordered to expel by flogging with rods from the territory of the towns, the poor lunatics who were wandering about the streets.* The official accounts of the city of Ghent for the year 1411 to 1412 show that on several occasions the executioner had for this received eleven *escalins de gros* (old Flemish money).

An examination, however, of the archives of the city of Ghent shows us that there was in this town an asylum for lunatics, called in Flemish *St. Jan ten dulle* (in French *St. Jean aux furieux*). It was able to hold 30 raving lunatics. At that time it was complained that a great number of patients were not in the state in which they ought to be, and two aldermen were charged to inspect the asylum from time to time. We do not know anything about the way in which

the patients were treated, but we may form our judgment about it considering the measures taken against lunatics wandering in the streets.

At the beginning of this century, there was no established order for the collocation of lunatics; the law spoke of them as if they were animals. *The Code Napoléon, published in 1804, punished those who allowed the insane, and mad animals to run about free.* The communal law was to watch over the confinement of the insane and of raving lunatics left at liberty. This legislation, therefore, was an advance upon the measures in force during the Middle Ages.

Until 1850 the public administrations in Belgium did not seem to trouble themselves about the insane, except to defend themselves against them, and having made them unable to do harm, they cared very little about their further fate. They scarcely troubled about hearing whether trespasses against individual liberty were committed. Surveillance was very slight, or none at all in *communes* remote from the centres where the law courts were. The lunatics were shut up and placed in special establishments, simply on the advice of local authorities; it was thought useless to apply to a medical man for examination of the mental faculties.

An investigation made in 1841 showed that these establishments were not seriously inspected, that some of them received, once a year only, a visit of the *procureur* of the king, and that these visits were incomplete and did not prevent great abuses. Guislain had complained since 1838, in a series of reports presented to the Minister of Justice, of want of legislation and of want of power of the authorities concerning the progress of this matter. The lunatics retained in their families were more numerous than those placed in the asylums; most of the families believed everything that was said against these unfortunates, and they acted in this case with so little thoughtfulness and remorse that one might have thought that the patients did not feel cold or heat, nor the bad treatment inflicted upon them. The patients were shut up in the cellars, the granaries, or in small cells, where they were almost unable to move, and they scarcely received any food. Others were confided to those mercenary people who offered themselves at the lowest prices.

Day and night they wore on their arms and legs heavy rings of iron connected by chains, and when lying down they had merely a heap of straw. Those who were brought over to Gheel were

moved without the least precaution and without any medical authorisation. Some arrived there in a dying condition.

In 1828 Guislain commenced his work of reformation at Ghent. In 1841 Belgium counted thirty-seven establishments with 3000 sequestrated lunatics; six only of these establishments were found in a good condition. The cost amounted to from 30 to 95 centimes per diem (on the average 70 centimes). Food appeared to be satisfactory in twenty-seven asylums only; in seven of them chains and irons were still met with, but they were suspected to exist in seven others as well.

Medical supervision was badly organised, and the physicians to the asylums occupied a very subordinate position only. There were three asylums only in which medical treatment could be considered complete, in the others the medical man was called in for accidental diseases only. The superintendents of these asylums were generally *entrepreneurs* or speculators considering the lucrative side only of their industry. Three asylums only were inspected by special commissions, and twelve by local commissions; the others were without any control. Visits from the judicial departments were very rare.

There were two asylums only in which the physician kept a scientific register. In the other asylums no account was kept either about the mental state of the lunatics or about their leaving, or about the causes of death.

The parish authorities, and sometimes the *procureur* of the king, ordered the sequestrations, but rarely a medical certificate was demanded for this purpose.

Touched by such great misfortunes, Guislain and Ducpétiaux worked out together the proposal of a law which was adopted in 1850. From this moment there are no more unhealthy habitations, no more monstrous plans, no more shameful speculations. The State adopts or refuses plans of construction and organisation, and committees exercise a permanent surveillance on the inner service. The fate of lunatics, restrained in their respective families, is guaranteed against bad treatment, and a lunatic who is confined without being deprived of his civil rights is looked after by a provisional administrator. The new law gives to the physician a most important position. The authority of the Government and of the province watches; it approves or disapproves of the nomination of the physicians. The law of 1850 consequently protects the lunatics, and has raised them to the dignity of patients.

It gives them all assistance wanted. The asylums are looked at like hospitals, and the material interests of the patients are guaranteed against the rapacity of the one and against the negligence of others. The physician presides over all the details of the service and without restriction over everything concerning the treatment and the well-being of the patients.

This reform originated in Ghent, and no other community of the country has done so much for the insane as the administration of that city on the initiative of the Commission of the civil hospitals. Indeed, most of the asylums of Belgium rival each other in improving the comfort of their inhabitants. Incessantly, the furniture and the number and variety of distractions are improved. Many asylums have now workshops and land to give their patients work. In one word, nothing reminds us nowadays of the period of iron and chains, of grated windows, of bad treatment, and of the means of restraint. One isolating cell only is allowed for one hundred patients, and the law, modified in 1874, has instituted administrative and judicial surveillance, which does not deserve any other reproach than that of being too great, and which renders any infringement of the rules impossible. The insane, at the beginning of this century considered as abject creatures, have today become the object of the greatest administrative and legal care. (See GHEEL.)

JULES MOREL.

BELLADONNA (*Atropa*).—The toxic effects of belladonna are due to its alkaloid atropine. The group of symptoms observed constitute *atropism*. They vary considerably according to the constitution of the individuals affected, but the effect on the intelligence is constant. Belladonna is undoubtedly a true mental poison. "Adults," observes Tardieu, "are seized, when under its influence, with a special delirium, gay, turbulent, erotic, mixed with hallucinations, to which succeed coma and convulsions." Christian has seen a patient who, when affected by atropine, gesticulated, fell into fits of laughter, talked incoherently, wished to climb up a vine-tree to catch butterflies and brightly coloured insects which he fancied he saw. It has happened that soldiers who had eaten belladonna berries laboured under numerous hallucinations. A patient, reported by Baillarger, fancied himself surrounded by different animals and sizes which crawled on the ground.

To resume: the symptoms of atropism, according to Gubler, are as follows:—

After the first intoxication, difficulty of speech and swallowing is observed, also loss of taste, tumefaction of the face, headache, vertigo, characteristic photopsia, dazzlings, and lastly, delirium. The latter is absolutely incoherent in character; sometimes gay, it is much oftener sad, marked by an inability to restrain gestures, talking, laughter, as well as by painful hallucination of sight and hearing, melancholy ideas, a feeling of depression, priapism and insomnia (Trousseau and Pidoux). Murray and Sarlandière have in some instances seen convulsions, and the latter has observed somnambulism. Gubler has noticed paralysis of feeling and movement, and loss of touch to the level of the hands.

In serious cases the eyes are prominent, the delirium remains playful in character or becomes furious; paralysis, tremors, stupor and coma precede death.

In the course of a few hours complete calm succeeds to the most violent disorder. (See Gubler in *Dict. Encyclop. des Sciences Méd.*) M. LEGRAIN.

BELL'S DISEASE (Luther Bell, an American asylum-physician).—A name given to a form of mania characterised by a sudden accession of symptoms, with loss of sleep, delirium, loathing of food, and extreme depression after excitement. (See ACUTE DELIRIOUS MANIA.)

BENEFICED CLERGYMAN, Insanity of.—If a beneficed clergyman becomes of unsound mind and incapable of performing his parochial duties, his living is not vacated, but the bishop of the diocese will provide for the services of the church by appointing a curate who will be paid out of the profits of the living.* The living of a lunatic clergyman is liable to sequestration by his creditors: Shelford's "Lunacy," p. 492; *Ex parte Hastings*, 1807, 14 Ves. Jun. 182.

A. WOOD RENTON.

BENÊT (Fr.).—A simpleton, idiot, or one "possessed," so-called from the fact that the exorcist of the Roman Catholic Church cast out evil spirits by *eau bénite* (holy water, or water from the bénitier).

BENEVOLENCE (*bene*, well; *volo*, I wish). The wish or intention to do good to others. That sort of love which disposes one man to confer a kindness upon another; goodwill. Term for a faculty found also in the lower animals, but in them limited in a great degree to the production of passive mildness of disposition.

* Where a beneficed clergyman is found lunatic by inquisition, the stipend of the curate is paid by the committee of the estate: 1 & 2 Vict. c. 106, s. 79.

BERGERON'S DISEASE.—Localised rhythmic chorea. (See HYSTERICAL CHOREA.)

BESS O' BEDLAM.—The female lunatic vagrant. (See TOM O' BEDLAM and ABRAM MAN.)

BETEL.—Nearly everywhere in the tropics, the inhabitants make use of betel as a masticatory which is a sort of mixture varying somewhat according to the locality, but in which the almond of the areca nut, quicklime, and the betel-pepper form the chief ingredients. The use of this masticatory develops, at first, the symptoms of stimulation, namely, slight mental excitement, increase of appetite, and more active digestion; its abuse disturbs the cerebral functions; a sort of intoxication, analogous to that of opium, haschisch, and kawa, but less accentuated, is observed.*

M. LEGRAIN.

BETHLEM ROYAL HOSPITAL.—This famous hospital, not originally intended for lunatics, owed its foundation, as a Priory, to Simon FitzMary, who in 1247 gave his landed property in the parish of St. Botolph without Bishopsgate, London, to the Bishop and Church of Bethlem in the Holy Land in order that a hospital or priory might be built for a prior, brethren and sisters of the Order or Star of Bethlem.

In 1346 this hospital was so poor that the prior applied to the City of London to be received under its protection. As this application was agreed to, it was subsequently governed by two aldermen.

In 1375 Bethlem was seized by the Crown on the pretence that it was an alien priory. The relations between the City and the Crown were henceforth hostile, and differences arose as to the appointment of the prior or master of Bethlem. The Crown gained the victory, and subsequent Sovereigns, including Henry VIII., insisted upon the right of presentation.

In 1546 the Lord Mayor petitioned Henry VIII. to grant Bethlem Hospital to the City, to which his majesty acceded. The freehold was not conveyed, only the government. In the course of time, however, the Crown abandoned its claim to the property. The date of the indenture between the King and the City was December 27, 1546, and the charter was granted January 13, 1547.

Charles I. confirmed the Charter of Henry VIII. in 1638.

It is impossible to say when lunatics

* The term betel or betel-nut is, in this country, more commonly used as synonymous with the fruit of the *Areca catechu*, a species of palm, the chief constituent of the above masticatory.—[ED.]

were first received into Bethlem Hospital, but the earliest mention of any insane patients being there, was in the year 1403.

In 1674 the building had become so dilapidated that it was necessary to build another. For this purpose the City granted land in Moorfields, and the second Bethlem Hospital was opened there in 1676.

In 1815 a Committee of the House of Commons obtained evidence which revealed a disgraceful condition of the Hospital. It had been already decided to build another asylum, the site of the building being St. George's Fields, Lambeth. It was opened August 1815. No doubt the treatment of the patients was much improved after this period, but the Charity Commissioners reported unfavourably upon the institution in 1837. Unfortunately it was exempted from the official visitation which Lord Ashley's Act of 1845 required in the case of other asylums, and an investigation ordered by the Government in 1851 showed that the management of the institution was highly unsatisfactory. The result was that reforms were introduced, and in 1853 it was placed under the same inspection—that of the Lunacy Commissioners—as all other receptacles for the insane.

The history of Bethlem Hospital, from that time to the present, has been progressively good and creditable to the governing body.

There is accommodation for about 300 patients. A convalescent establishment has been erected at Witley, Surrey, and has proved of great advantage to the patients.

THE EDITOR.

[Cf. Bowen's "Historical Account of Bethlem," 1783. A detailed account of Bethlem Hospital is given in the writer's "History of the Insane in the British Isles," 1883.]

BICÉTRE. (See FRANCE.)

BILE.—From the earliest period of Medicine; mental disorder was associated with the secretion of bile. Hippocrates said that loss of reason may arise from bile, and that those who are mad from this cause are vociferous and malignant. The brain, according to him, "is heated by bile when it is determined to the brain along the blood-vessels running from the trunk, and fear is present until it returns again to the veins and trunk, when it ceases" ("The Sacred Disease," Works of Hippocrates, Sydenham Society, vol. ii. p. 855). Hence the term "melancholia" (*Μελαγχολία*). The Romans no less than the Greeks referred the disturbance of the mental functions, whether violent anger or actual madness, to the condition

of the bile. Celsus prescribed hellebore in those cases in which mental depression appeared to arise from black bile. Horace, when he refers to Orestes, says: "Was he not driven into frenzy by those wicked Furies, before he pierced his mother's throat with the reeking point of his sword? Nay, from the time that Orestes passed for being unsound of mind, he did nothing in any way to be condemned; he never dared wound with his sword either his friend Pylades or his sister Electra; he merely abused both, calling one a Fury, the other some other name suggested by his active or bright bile" (Sat. ii. 3, 134). Again, in the story of the Argive who laboured under the delusion that he was listening to a play, Horace says "his relations cured him with much labour and care, by expelling the disease and the bile by doses of pure hellebore" ("Epist." lib. ii. 2, 136-8). Lastly, Seneca may be quoted (Epist. 94): "Nigra bilis curanda est, et ipsa furiosis causa removenda."

The liver among the ancients was regarded as the seat of the passions, and hence their opinion regarding bile in relation to mental disorder. THE EDITOR.

BIOPHILIA (*Bios*, life; *φιλία*, love). The instinct of self-preservation common to man and the lower animals.

BIOTHANATOS (*Bia*, violence; *θάνατος*, death). A term used by Forestus in Schol. ii. b. i. obs. i., for one who dies a violent death, either by his own hand or otherwise. A synonym of Suicide.

BISHOP, Insanity of.—The procedure in case of the incapacity from mental infirmity of a bishop is regulated by the statute 32 & 33 Vict. c. III, made perpetual by 38 & 39 Vict. c. 19.

Whenever any archbishop has reason to believe that any bishop of his province is incapable, by reason of mental disease, of performing his episcopal functions, he may, with the aid of two bishops of his province, inquire into the state of mind of such bishop and to report to one of H.M. Secretaries of State thereon. If the bishop has been found lunatic, and the inquiry has not been set aside, no further inquiry is necessary. In pursuance of the report (if any) a letter missive may be granted authorising the election of a bishop coadjutor to perform the episcopal functions.

The same proceedings take place where an archbishop becomes insane, except that a bishop of the province is substituted for the archbishop in the statutory inquiry.

A. WOOD RENTON.

BLESUS (*βλαυσός*, distorted). A name given to a person suffering from paralysis

and who has defects of speech. An old term for general paralysis.

BLANKS (etym. doubtful, either from Fr. *blanc*, white, pale; or from the blank expression of the face). A popular term for epileptic vertigo.

BLINDNESS, MENTAL. (See MENTAL BLINDNESS.)

BLISTERS. (See THERAPEUTICS.)

BLOOD-LETTING. (See THERAPEUTICS.)

BLOOD OF THE INSANE.—Clinical investigation into the condition of the blood of the insane is still in its infancy. This may be accounted for partly by the extent and variety of the considerations involved, and partly by the fact that the workers in this field of research have been few, and their recorded observations by no means exhaustive. In this article we propose first to indicate some of the considerations which suggest the importance of research into the subject, and then to give a *résumé* of the conclusions which have been already published.

The earlier writers on insanity, including Pinel and Esquirol, believed that functional disturbances of the higher nervous centres were the chief factors in the production of mental disease. However this may be, and whether functional disease of the brain may exist without appreciable change of structure or not, there can be no question that the quantity and quality of the blood which circulates through the higher nervous centres affect the functions of those centres in an important manner.

The effect on the brain of an excess of blood is lethargy, while a diminution of its quantity produces syncope and unconsciousness. Both these conditions, known respectively as congestion and anæmia, may be due to temporary irregularities in the supply of blood to the brain, and may pass away without leaving any ill consequences behind, although their frequent occurrence, acting on a highly susceptible organism, may produce minute changes manifesting themselves by various morbid mental phenomena. Andral lays down the axiom that "in every organ, the diminution of the normal quantity of blood which it should contain produces functional disturbances, as well as the presence of excessive quantity of blood." It is difficult to determine whether these alterations in the quantity of blood circulating through the brain are local or general in character, but it seems reasonable to premise that both conditions are possible. It is not, however, sufficient to refer mental symptoms to hyperæmia in one case and to anæmia in another, for

they themselves are frequently mere effects. In this connection, the importance of the vaso-motor system must not be overlooked. Maudsley believes that all active emotions are accompanied by changes in the circulation, through vaso-motor inhibition, and that vascular disturbances may be produced by them within the brain, very much as blushing of the face and neck is produced by shame. Irregularity in the blood supply of the brain produces a condition of irritation of that organ, though this need not necessarily go on to actual mental disease. The sluggishness of the circulation in the extremities of many asylum patients, especially demented, is very noticeable, and if this be any criterion of the state of their cerebral circulation, there is little difficulty in accounting for their mental symptoms.

The quality of the blood may be impure, from some error in the processes of digestion, assimilation, or excretion. To take the most common instance of this: the presence of bile in the blood, even in healthy and strong-minded individuals, gives rise to gloomy forebodings and melancholy conceptions. Also uric acid in the blood of a gouty patient causes an irritability of temper, which is sometimes so severe that it passes into an outbreak of maniacal excitement. Arguing from such well-known facts as these, and knowing the effects of certain drugs, as chloroform producing anæsthesia, nitrous oxide gas producing laughter, and alcohol producing hilarity and excitement, we must admit that the brain may be affected through its nutrition; or, in other words, through the quality of its blood supply.

Of course, the affections of the nervous system must not be approached from the vascular side only; but this aspect of the question is well worthy of attention. In this connection, it is interesting to remark that nervine sedatives are more or less vascular depressants, and that nervine tonics tend to raise the blood pressure.

The effects produced on the blood by mental labour have been studied by Theophilus Thompson, who instances cases "where sleeplessness and loss of mental power following over-exertion were associated with jugular murmurs and a remarkable deficiency of the white blood-corpuscles—there not being one-fourth of the average proportion of health—all this without muscular debility or impaired digestion, but with oxaluria to a slight extent." Lauder Lindsay, who was one of the first to make a systematic examination of the blood of asylum patients, has shown that decided blood

changes are often the first step in the overthrow of the equilibrium between the bodily and mental functions, and that they may exist prior to and without the development of any other specific or recognisable ailment or disease. The result of his observations, which consisted of an examination into the relative proportion of serum, fibrin, and globules in a large number of cases, is negative, however, and "indicate that insanity and the different types and phases thereof are not characterised by a particular morbid state of the blood, and tend to show that insanity must be placed in the category of ordinary physical diseases."

Blood, when examined by the microscope, is seen to consist of an enormous number of corpuscles—coloured and colourless—floating in a transparent fluid—the liquor sanguinis. Blood plates and elementary granules may also be recognised, and, when coagulation has taken place, a reticulum of fibrin. The colouring matter of the red corpuscles or hæmacytes, which gives to the blood its red colour, is called hæmogoblin. In examining the blood for clinical purposes, there are three points to be considered: (1) Its richness in corpuscles; (2) the richness of the corpuscles in hæmogoblin; and (3) the amount of water diluting the corpuscles. Instruments of considerable precision have been devised for ascertaining the richness of the blood in corpuscles and in hæmogoblin. Inasmuch as the number of corpuscles present in any given bulk of blood is merely an expression of the proportion of corpuscles to the amount of plasma, variations in the number of hæmacytes counted might be caused by an increase or decrease in the quantity of plasma occurring, while the actual number of the corpuscles is stationary. Unfortunately, we have as yet no means for determining this third factor during life, and this diminishes the value of results obtained by these instruments.

All the methods devised for ascertaining the corpuscular richness of the blood consist in making a definite dilution of a certain quantity of blood, and counting the corpuscles in a certain volume of that dilution. Potain, Malassez, Hayem, and Nchet have each devised an instrument, adapted for clinical purposes, but their methods are cumbersome and inconvenient. The simplest instrument for ordinary use is Gower's Hæmacytometer, which is accurate enough for all practical purposes.

Great care is necessary to eliminate, as far as possible, any instrumental error in the numerations. To obviate this, the following safeguards are recommended to

insure accuracy. The same instrument should be used in each series of observations, the blood should be drawn from the finger without pressure, more than one drop of the mixture should invariably be counted, and finally, the observations should all be made at the same hour each day, to obviate any possible error attributable to the process of digestion. Physiological variations such as the influence of age, season, diet, menstruation, sweating, &c., have been carefully studied, and need only to be mentioned here as a warning against drawing clinical inferences from any but marked deviations from the normal standard.

It may be granted as a physiological basis that, in healthy and sane individuals, the number of red blood-corpuscles contained in a cubic millimetre of blood—*i.e.*, the corpuscular richness of the blood, is represented by 5,000,000 in men, and 4,500,000 in women, or expressing this in percentage form—male healthy blood 100, female 90. These are the numbers given by Welcker, the pioneer in this field of investigation. Laache, in an analysis of sixty cases, found the mean to be 4,970,000 per c.m. for men and 4,430,000 per c.m. for women (99.4 and 88.6 per cent.). Dupérié gives an average of 5,100,000 for both sexes. The result of our own observations is 5,075,000 per c.m. for men, and 4,676,000 per c.m. for women (101.14 and 93.52 per cent.) The size of the red disc varies considerably, and Hayem says that 75 per cent. of the corpuscles are of average size, 12 per cent. larger and 12 per cent. smaller than normal. This is an important point, for it is obvious that if the small forms are more numerous, the average corpuscular diameter is lower than normal, and if there be a number of large cells in the blood under observation, the corpuscular diameter of the cells is relatively increased.

The average proportion of white to red corpuscles in health varies from 1 to 450 to 1 to 550, or, in other words, the absolute quantity of white blood-corpuscles in a cubic millimetre of blood keeps within the normal limits, between 10,000 and 14,000.

But it is not enough to count the corpuscles. We require some means of determining their functional value, that is, their richness in hæmoglobin. The amount of hæmoglobin in the blood is ascertained by means of Gowers' Hæmoglobino-meter, Fleisch's Hæmometer, or Bizzozzo's Chromocytometer. These methods consist in diluting a known volume of blood, and comparing it with a standard solution which computes the quantity of hæmo-

globin in normal blood, at 100 for males, and at a slightly lower percentage for females. The average amount of hæmoglobin in each corpuscle is represented by a fraction, of which the numerator is the percentage of hæmoglobin, and the denominator, the percentage of red corpuscles. All the methods of chromometry hitherto devised have one radical defect—the standard of comparison is relative, not absolute, the "normal corpuscle" is an arbitrary unit. However, as each series of observations is usually made simultaneously, and with the same cytometer and chromometer, this will not impair their relative significance.

We shall now give a short summary of the published clinical observations on the blood of the insane, classifying our observations according to the various forms of mental disease.

Mania.—A globular richness of the blood equal to, or higher than, the normal percentage, has been found to exist in cases of mania, and it is exceptional to find the red blood-corpuscles deficient in any marked degree. Of forty-three cases of mania, out of a series of two hundred admissions, the percentage of hæmocytes was below the normal in only eleven cases, and the highest average percentages of the whole series were found in some of the remaining thirty-two cases. The percentage of red corpuscles was higher in men than in women, while the proportion of white to red corpuscles was larger in the case of women. In the majority of the cases, the amount of hæmoglobin was normal, or nearly so, in both males and females, the average percentage being 98 in twenty-two men, and 93 in twenty-one women.

Melancholia.—The blood is more deteriorated in cases of melancholia than of mania. In forty-two cases (sixteen males and twenty-six females) deficiency in the red blood-corpuscles was observed in 50 per cent. The subnormal corpuscular percentages oscillated between very variable limits in individual cases, but in women a low percentage was relatively more frequently ascertained, and was likewise absolutely 10 per cent. lower than in men. The proportion of white to red corpuscles varied within normal limits. The richness of the blood in hæmoglobin was lower than normal in a little more than half the cases, and the average percentages were ninety-three for men, and eighty-five for women. In several instances the blood was deficient in hæmoglobin, but contained a normal percentage of hæmocytes.

Dementia.—Inquiry has been made into the condition of the blood in cases of both

ordinary and senile dementia from various standpoints. It has been found that the period of residence in an asylum, and the season of the year, do not affect the absolute proportional averages of the constituents of the blood. Observations, one hundred and eighteen in number, were made on a series of forty male demented in average health—the class who form the unrecovered residuum of asylum patients. The weights of the individual patients, ascertained four times during twenty-nine months, varied but slightly, and the observations on the blood were made at three different seasons of the year. We arrived at the following conclusions: The percentage of red blood-corpuscles is considerably below the normal standard, and this diminution progresses with the age of the individual. The percentage of hæmoglobin is likewise diminished, but does not appear to be influenced by the age of the patient. The blood is deficient in hæmatoblasts (elementary granule cells), and the proportion of white to red corpuscles is normal. In patients over thirty years of age the weight decreases proportionately to the period of residence, but this decrease in weight does not appear to influence the relative percentages of hæmocytes and of hæmoglobin. The blood of twelve patients in the series, known to be addicted to masturbation, is deteriorated in a very marked degree.

It has also been ascertained, by another series of observations, that the average proportion of red corpuscles is below the normal standard in 55 per cent. of cases admitted into asylums, that the percentage of hæmoglobin is nearly normal in most of the cases, and that the blood is more deteriorated in females than in males.

Imbecility.—The recorded observations in cases of mental defect and idiocy have extended over too small a number to be of much value. In sixteen cases, eight show a percentage of hæmocytes lower than the normal standard. There is a diminished percentage of hæmoglobin in all the cases, more marked in women than in men. The proportion of white to red corpuscles is normal.

General Paralysis.—The observations on the histology of the blood in general paralysis, by Sutherland in 1873, have been verified by later observers. He says that absence of rouleaux, and an increase in the colourless corpuscles at the expense of the red, appear to be conditions peculiar to general paralysis, and indicate a very low degree of vitality. He also found that the blood was more deteriorated in

males than in females. The cases which he examined were all in an advanced stage of the disease. Seppill's observations, on the other hand, were made on patients in the first stage of paralysis. His conclusions are: A leucocythæmic condition in 25 per cent. of the cases examined, more marked in males than in females, a lower percentage of red blood-corpuscles in 33 per cent., more frequent and intense in women than in men, and a fairly normal percentage of hæmoglobin. Our own observations on the blood of patients at three different stages of the malady are quite in accordance with these conclusions, and may be summarised thus: The red corpuscles deteriorate both in quality and quantity, coinciding with the progress of the disease. The relative proportion of white to red corpuscles is increased, and this increase is coincident with the progress of the disease. The percentage of hæmoglobin is low at first, it improves in the quiescent stage of the disease, and falls again in the paralytic stage. In the quiescent or demented stage, the average percentage of hæmoglobin is higher, and the average percentage of hæmocytes is lower than in the case of ordinary demented patients of the same age. During the bed-ridden or completely paralysed stage, small granule cells are not present in the blood, there is little tendency of the corpuscles to form into rouleaux, and the individual corpuscles are irregular and deformed.

Epileptic Insanity.—Defective nutrition of the body, including anæmia, has long been recognised as a predisposing cause of epilepsy. In idiopathic epilepsy no constant anatomical lesion has been discovered, and it may therefore be inferred that the lesion is a molecular one. According to Nothnagel's theory, continued excitation of the vaso-motor centre is the necessary pathological condition of the epileptic paroxysm. In other words, he believes that irritation of the vaso-motor centre causes contraction of all the arteries of the body, including those of the brain; and that the anæmia caused by the contraction of the vessels of the brain is the active factor in producing epilepsy. The recorded results of the examination of the blood in this disease do not however point to any marked deterioration. We, in conjunction with other observers, have arrived at the following conclusions: The vitality is lower, and the blood is more deteriorated in male than in female epileptics. Of one hundred cases on admission, thirty-seven recorded a lower percentage of red blood-corpuscles, and forty a higher percentage, than

normal. The percentage of hæmacytes and of hæmoglobin is slightly higher than in demented patients of the same age. The proportion of white to red corpuscles varies within normal limits. A very interesting fact has been elucidated by one series of observations—viz., that the quality of the blood of epileptic patients improves during treatment with bromide of potassium, and that the prolonged use of the drug exercises no deteriorating influence in lowering the percentages of hæmacytes and of hæmoglobin.

Puerperal Insanity.—Bevan Lewis has published the results of observations in five cases of puerperal insanity. The amount of hæmoglobin was found below the normal in all, varying from 20 per cent. to 78 per cent. The corpuscular richness approached that of normal blood in the uncomplicated cases. In one case, however, the red blood-corpuscles only registered 40.8 per cent. The corpuscular value estimated in hæmoglobin was invariably low; the percentage of white corpuscles was normal. In one case of *post-partum* hæmorrhage he found minute fat globules in the blood and many ill-formed corpuscles.

Pellagrous Insanity.—This type of mental disease is unknown in Great Britain, but in Italy is so common that it constitutes 20 per cent. of the admissions into asylums. It is frequently associated with anæmia, and Seppilli, who has made a special study of this disease has found the blood very much deteriorated. He found a sub-normal percentage of the red corpuscles in sixty-seven out of seventy-five cases examined, and in some cases, particularly women, it was so to a very marked degree. The proportion of white to red corpuscles was increased in 10 per cent. of the cases. In eleven instances the percentage of hæmoglobin registered below 55 per cent., the average percentage of the seventy-five cases, being 79 for men and 65 for women. Deficiency of hæmoglobin was more frequently observed than a decrease in the corpuscular richness of the blood, and both conditions existed more frequently, and to a more serious extent, in women than in men. Venturé has found in the blood of pellagrous patients, a microbe resembling that stated to be found in lepra.

Periodic Attacks of Maniacal Excitement.—Their influence on the constituents of the blood has likewise been studied, and the result of these investigations points to the conclusion that the blood is deteriorated during an attack of this nature, and also that the more prolonged and severe the attack of excitement, the

greater is the deterioration in the quality of the blood. The following is a summary of sixty-eight observations on the blood of six female patients subject to attacks of periodic excitement, thirty of the observations being made when the patients were free from excitement, and thirty-eight while they were in an excited state. During an attack of excitement, the average percentage of red blood-corpuscles is less, and small forms are more numerous than in periods of freedom from excitement. Maniacal attacks do not appear to influence to any great extent the relative proportions of white to red corpuscles. The percentage of hæmoglobin is less during an attack of excitement than in the periods of quiet preceding and following the attack.

On Recovery.—The state of the blood in patients who recover from an attack of insanity, and the effect of blood tonics in improving the quality of the blood in cases of recent insanity, form an interesting and important study. This field of research is still an El Dorado of knowledge, and one in which explorers are much needed before we can arrive at any definite conclusions which would be of practical value in the curative treatment of the insane. Such observations as have been published, however, furnish interesting and fairly uniform results, and the researches of Gallopain, and of Raggi deserve recognition along with those of other observers already mentioned in this article. We shall not attempt to do more than give the conclusions which the results, hitherto published, warrant.

Diminution of the red blood-corpuscles and deficiency of hæmoglobin occur with great frequency in the first stages of insanity. In patients who recover, the quality of their blood improves during residence in the asylum, and on discharge is not much below the normal standard. There appears to be a close connection between gain in weight, improvement in the quality of the blood, and mental recovery.

Treatment.—While there is a definite improvement in the condition of the blood during mental convalescence in all cases, the improvement is both more pronounced and more rapid in those who have had tonic treatment.

The result of an investigation, undertaken by ourselves, comprising over two hundred observations, would seem to indicate that the four tonics, which either alone or in combination, were most efficacious in improving the quality of the blood may be classed in order of value, thus—(a) iron, quinine, and strychnine; (b) iron

and quinine; (c) iron alone; (d) malt extract. In ordinary cases, arsenic proved of little value as a blood tonic, but in four cases, associated with anæmia (progressive pernicious anæmia), a remarkable improvement in the quality of the blood was observed in three instances. Treatment with vegetable and bitter tonics, and cod liver oil did not improve the quality of the blood to any marked extent.

The results of clinical investigations into the blood of the insane have now been discussed seriatim, and the more important of the conclusions arrived at by various observers have been detailed. We shall, however, fall into a grave error if from these we insist upon drawing deductions establishing universally that a constant relation exists between the corpuscular constituents of the blood and insanity. The ætiology of mental diseases, as well as the genesis of the morbid phenomena which distinguish the several varieties, is so complicated in its elements that it is impossible to consider one single factor by itself. We are not yet in a position to say, whether, on the one hand, recognising the abnormal qualitative and quantitative condition of the blood-corpuscles which exist in the various forms of mental disorder, we are justified in considering this as the cause of the various clinical manifestations, or whether the changes which have been found in the blood are simply the result of the blood-forming function being disturbed by a disarrangement of the nerve centres. It is difficult to establish a relation of cause and effect, more especially as the same alteration of the blood may be met with, not only in the most dissimilar forms of insanity, but also frequently in individuals whose mental condition is perfectly normal.

In order to arrive at a correct appreciation of any relation which may exist between the state of the blood and insanity, accurate life-histories of a large number of cases would require to be detailed and discussed, attention being paid to the physical as well as to the psychical manifestations. This portion of the subject has hitherto been practically untouched by investigators. It is obvious, however, that in a considerable number of cases of mental disease we cannot establish a causal relationship between the mental state and the globular richness of the blood; both depend on different factors, or, it may be, on the same morbid cause affecting at the same time the cerebral as well as the blood-forming functions. In other cases, there appear to be reasonable grounds for attributing

the alterations in the corpuscular richness of the blood, indirectly, to morbid condition of the nerve centres. Again, there are cases in which a serious loss of blood, or a prolonged illness, such as phthisis, through which the condition of the blood had been greatly altered, has been shown to be the undoubted cause of the onset of the mental symptoms.

Summary.—We are justified in emphasising the following conclusions, viz., (1) That the frequent deficiency of the corpuscular richness of the blood met with in the first stages of insanity, teaches us that the good hygienic condition of asylums, a generous dietary, warm clothing, open air exercise, and suitable tonics, must form the fundamental principles on which the therapeutics of mental disease ought to be based; (2) the close connection which exists between improvement in the quality of the blood, and mental recovery, the converse which exists in cases of persistent and incurable dementia, and the marked improvement which is effected by certain remedial agents, show that this line of clinical research should have more attention paid to it than has hitherto been the case, more especially with reference to the curative treatment of the insane.

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BLUE DEVILS.—A slang term for lowness of spirits, melancholy. Roach and Esquirol affirm from observation, that indigo dyers are especially subject to melancholy, while a choleric disposition pertains to those who dye scarlet. Paracelsus also asserts that blue is injurious to the health and spirits.

BOARDING-OUT (Scotland).—The so-called *boarding-out* of some of the

insane in private dwellings is an organised part of the lunacy administration of Scotland, and is the outcome of a recognition of the fact that all persons who are insane do not require care and treatment in asylums, either in their own interests or in the interests of the public. Those of the insane, who are thus provided for in private dwellings, are broadly described as incurable, harmless, and easily managed. By providing for some of the insane in this way, a benefit is believed to be conferred not only on them, but also on those of the insane who require to be cared for and treated in asylums. It proves also a benefit to the ratepayers by preventing the needless multiplication or enlargement of asylums.

Under the Scotch law every pauper lunatic must be sent to the asylum of the district in which the parish of his settlement is situated, unless his removal to such asylum has been dispensed with by the General Board of Lunacy, in which case he must be provided for in such a manner, and under such regulations as to inspection and otherwise, as are sanctioned by the General Board of Lunacy. In the case of each pauper lunatic provided for in a private dwelling the approval of the General Board has thus to be formally obtained, and that approval is granted after consideration of certificates and statements furnished to the Board, and on conditions which have to be observed. When patients, whose residence under private care has been sanctioned, are afterwards found to be unsuitable for private care, the sanction of the Board is withdrawn, and removal to an asylum ordered.

Pauper lunatics under private care are visited four times a year (oftener in case of sickness) by the parochial medical officer, and twice a year by an inspector of the poor, both of whom record their visits, in a form prescribed by the General Board, in books kept in the houses in which the patients reside. They are also (nearly without exception) visited once a year by a deputy commissioner or a commissioner in lunacy. Where the patients are located in groups, and where exceptional circumstances exist, they are visited by a member or officer of the General Board more frequently than once. The results of every visit of a commissioner or deputy commissioner are reported to the Board—a separate report being made in regard to each patient. The first report describes the mental condition of the patient, and is the basis of a case-record which is kept in the office of the Board, and which contains the reports from year

to year of the visiting commissioners, the observations of the Board on these reports, a note of all the letters received and written regarding the patients, and of all changes in the arrangements originally sanctioned. These case-records thus furnish a description of the whole history of the Board's dealings with every patient whose residence in a private dwelling has been sanctioned.

Pauper lunatics under private care are placed either singly, or in numbers not exceeding four in one house. When the Board sanctions the residence of more than one patient in any house, that house requires to receive from the Board what is called a special licence, which is not paid for and merely means a sanction, and which is granted on information called for by the Board. The number of private dwellings so licensed has of late years greatly increased. On 1st January 1890, they were 441 in number, and they accommodated 885 pauper lunatics. The total number of pauper lunatics under private care at that date was 2445, so that 1560 of them were disposed of singly, or 63.8 per cent., and 885 were disposed of in houses with special licences, or 36.2 per cent. The power to place more than one pauper lunatic in a private dwelling is regarded as a great advantage, nevertheless, the General Board unwillingly allow the number to exceed two. The number of houses, however, licensed to receive three is not inconsiderable. Few houses are licensed to receive four. *Life in family* is found to be more complete and secure, when the number of patients in a house is small.

Of the total number of pauper lunatics on Jan. 1, 1890, 1036 lived with relatives, or 42.3 per cent., and 1409 with persons who were not relatives, or 57.7 per cent. Whether the persons with whom they live are related or not related, they are called guardians. The Board encourage the placing of patients with relatives, but the increase of the total number of pauper lunatics under private care during the last ten years has consisted largely of patients under the care of non-related guardians, most of whom are allowed to receive more than one patient. There has been of late years a larger removal of incurable and harmless patients from asylums, and most of them have gone to unrelated guardians, and it is to these patients that the term *boarded-out* specially applies. There is thus another important classification of pauper lunatics in private dwellings into (1) those who pass into that position by direct transference from asylums, and (2) those who

have never been in asylums, or who after discharge from asylums, either as recovered or as improved, but not in need of parochial assistance, are again recognised as both insane and in need of parochial assistance, but not in need of care in asylums.

The number of pauper lunatics in private dwellings on 1st January 1875, was 1387, or 20.8 per cent. of the total number of pauper lunatics on the registers of the Board. On 1st January, 1890, it had risen to 2445, or 23.8 per cent. of the total registered numbers.

During the last ten years, 3208 lunatics have been added to those whose residence in private dwellings has been sanctioned. Of these 1947 were transferred directly from asylums to private care. During the same period 960 deaths occurred among pauper lunatics in private dwellings, or an average of 4.8 per cent.

It is of importance to know that since 1875, when the exodus of incurable and harmless patients from asylums began to increase, there has been practically no difficulty in finding suitable guardians. They have been found in localities in which they were long said to have no existence. In some localities they have been found in considerable numbers. In Kennaway, for instance, there are about 50 pauper lunatics, in Star about 33, in Ballantrae about 30, in Balfren about 51, in Markinch about 67, in Gartmore about 74, and in Lanark and Lesmahagow about 78. The parishes of large cities like Glasgow, Edinburgh, Dundee, and Aberdeen, have boarded out extensively, either in the rural parts of the counties in which these cities are situated or of other counties.

The rate of board paid for pauper lunatics may be said to be 6s. or 7s. per week when they live with unrelated guardians, but when they live with relatives, who are often only assisted in supporting them, it is frequently much less, and may be said to range from 2s. to 5s. per week. In every case, whether the patients live with related or unrelated guardians, the Board requires that clothing shall be given in addition to any money allowance.

That the condition of insane paupers, who are provided for in private dwellings in Scotland, is satisfactory is shown by the general returns of the Visiting Commissioners in the appendices of the annual Reports of the Board of Lunacy.

Private lunatics under private care in Scotland are not in the same position as pauper lunatics. The statutes do not require that all insane persons who are not paupers, and who are not placed in estab-

lishments for the insane, shall be under the jurisdiction and supervision of the Board. It is only in certain circumstances that such persons require to be certified and reported to the Board. If they are kept in private homes for profit and suffer from mental disorder of a confirmed character, or if, whether kept for profit or not, they have been insane for more than a year and are subjected to compulsory confinement to the house or to harsh and cruel treatment, or if they possess property which has been placed under curatory by a court of law, then they come under the Board's jurisdiction and supervision. A large number of private lunatics living in family, who are neither kept for profit, nor restrained, nor cruelly used, nor under curatory, are not under the Board's jurisdiction. Even a private patient, who is kept for profit, does not require to be placed under the Board's jurisdiction, if it is certified by a registered medical practitioner that the patient is afflicted with a malady which is not confirmed, and that it is expedient to place him for a temporary residence, not exceeding six months, in the house in which he is kept.

The number of private patients in private dwellings under the Board's jurisdiction has increased from 85 in 1875, to 128 in 1890. The care over such patients is as full as that over pauper patients similarly provided for, and regarding each of them there is a carefully kept case record.

JOHN FRASER.*

BOARDING-OUT (United States).—The American Insane in Private Families.

1. **In Massachusetts.**—The first introduction in the United States of the Scotch system of boarding-out the insane was made by law in Massachusetts in 1885; and the first patients so placed in private dwellings went out from the State Hospitals at Taunton and Danvers in August 1885. In the three years following, while the system was administered by the Inspector of Charities, Mr. Sanborn, 180 different persons were boarded-out, and in the two years and three months since August 1, 1888 (up to November 1, 1890), 136 other patients have been so boarded, under the direction of Dr. A. R. Moulton, the present inspector. In all, therefore, 316 different persons, in various stages and degrees of insanity, have been boarded-out from the public hospitals and asylums of Massachusetts in five years and three months. All these were selected and recommended for boarding-out by the superintendents of the public establishments,

* This article has been carefully revised by Sir Arthur Mitchell, K.C.B., Commissioner in Lunacy for Scotland.

the largest number going forth from the Tewksbury Asylum for the Chronic Insane, the inmates of which were found to be the best fitted for family life. Next to this asylum, the Northampton Hospital furnished the largest number, and for a similar reason—the patients there were mainly chronic and quiet cases, which could be received into families with the least risk, and with the best prospect of becoming partially self-supporting. In this way, also, the wearisome years of confinement in an asylum could be shortened, many of the Tewksbury and Northampton patients having been so confined for ten, twenty, or even thirty years. Among the whole 316 persons boarded-out, 40 have become permanently self-supporting in the five years since August 1885, while less than twenty are known to have died. Most of these died in the establishments from which they were taken, having been returned there during their last illness; and only about six have died in the families to which they were sent. Only one out of 316 has committed suicide in five years.

These figures indicate the care with which the patients were selected with reference to their health and their tendencies. Nearly two-thirds of them were women, and the majority, both of men and women, were of Irish parentage. All but about 40 were originally paupers, but more than 20 of the pauper class have become self-supporting since first boarded-out, and at least 20 of the whole 316 have virtually recovered. About 100 went back to the hospitals, sooner or later, a few to die there, and many to be discharged like the other inmates who go forth unrecovered. On Nov. 1, 1890, upwards of 150, or nearly half the whole number, still remained in families; and even of the 180 who were boarded-out in the first three years (1885–88) 54 remained in families at the end of five years. The general result of the system in Massachusetts has, therefore, been satisfactory; and the cost has gradually diminished, so that it now costs about 25 cents (1 shilling) less a week to board-out each patient than to support them in hospitals. The average weekly cost is a little below \$3, while in the hospitals it ranges from \$3.25 to \$3.50 a week. The number boarded-out in Massachusetts has been too small to relieve the establishments from overcrowding in any great degree; but a much larger proportion of all the insane could now be provided for in this natural manner. Twice as many approved families make application for boarding patients as have been supplied with them; and there will be no difficulty

in extending the system, though it may never reach so far as does the Scotch method, from which it was borrowed. Yet 10 per cent. of the Massachusetts insane might be cared for in this way.

2. **In Wisconsin.**—The only other American State which has inclined towards the Scotch system is Wisconsin, where a species of boarding-out is now coming into use, by the temporary discharge of patients from the small county asylums. These now number twenty, and contain 1715 patients, of whom about 80 in the past two years have gone to reside in families, chiefly of their own relatives, and are entered on the asylum books as "absent on leave." It is proposed to extend this practice, by the payment of a small price to other families not related to the patient, and thus to introduce the Scotch method in the rural counties of Wisconsin, where the State Board of Charities believe it would work as well as it has in Massachusetts. The whole number of the insane under inspection in Wisconsin is about 4000 in a year; in Massachusetts nearly 8000.

F. B. SANBORN.

BONE DEGENERATION in the Insane (Osteoporosis; Fragilitas Ossium).—That the bones of lunatics, in particular the ribs, are specially liable to fracture is a fact with which asylum physicians are only too familiar, but that such fracture is not in all cases occasioned by undue violence, but may find its explanation in an abnormal fragility of the bones themselves, is an opinion which has of late years gained ground, and which has a considerable basis of support in the scattered observations of various writers on the subject. Amongst the more important of these observations may be mentioned those of Dr. Ormerod,* who, as the result of a careful microscopical examination of the ribs of several insane persons, found that there was a tendency to absorption of the internal structure of the bones, the osseous material being replaced by an excessive deposit of the fatty matter normally existing in the interior.

The paper by Drs. Rogers and Campbell Brown† is remarkable in that the subject is approached from a different standpoint, the result of a detailed chemical analysis of the ribs of three general paralytics being given. As the result of this analysis, it was found that the ratio of organic constituents to earthy matter was much greater, whilst the ratio of lime to phosphoric acid was distinctly less in

* *St. Bartholomew's Hospital Reports* 1871.

† *Liverpool Medical and Surgical Reports*, 1870.

the ribs of paralytics than in those of healthy adults.

In the year 1883 the present writer published* the result of an investigation he had made into this question, the ribs of thirty lunatics, taken without selection, being submitted, after decalcification to microscopical examination; the conditions met with being compared with those observed in the ribs of eight sane individuals similarly treated. The results obtained may be thus briefly summarised. In the case of the eight sane patients, the ribs of six were perfectly normal, whilst in the remaining two there was a slight tendency to openness of structure in the layer of compact bone immediately beneath the periosteum. With the ribs of the lunatics the case was different. Here eight only of the thirty could be described as absolutely normal, whilst nineteen others showed slight changes, such as were met with in the two ribs of the sane patients just mentioned, the changes, however, being somewhat more pronounced in the case of the insane patients. The remaining three exhibited clear and well-defined departure from the normal, which may be thus summarised. The external layer of what should have been compact bone was in many places thinned and riddled with cavities of all shapes and sizes, some round and clearly formed by the absorption of an Haversian system, others oblong, and apparently produced by the coalescence of two or more of these circular vacuities; many of these large oblong vacuities were situated quite in the superficial part of the compact substance, in some cases immediately beneath the periosteum—in the layer of bone, that is, which normally would be most compact; the trabeculæ of cancellous tissue, and those formed by the vacuolation of the rounded substance, presented in many cases rounded ends, as if in actual process of being worn away. The sum of the changes was to produce great porosity of the bone, and necessarily to render it very liable to fracture.

Some measurements bring out more clearly the contrast between the sane and the insane cases. In the former, which happened to be mostly females, the average depth of the outer compact layer of bone was .59 mm. Measurements taken, however, in the corresponding positions in the ribs of the insane patients gave as a result of one hundred and seventy-five separate observations an average depth of only .32 mm. In the case of the three examples of very porous ribs just described, measurements were also taken of two of the largest cavities in the compact sub-

stance, which had apparently been produced by absorption, and these were found to extend in the long axis of the bone for a distance of 2.3 mm. and 1.94 mm. respectively, the depth being .25 mm. in the former case and .42 mm. in the latter.

These observations, therefore, go entirely to confirm those of other observers as to the relative frequency with which porous ribs are met with amongst lunatics.

Recently Mikhaïl v. Konstantinovsky* has tested the condition of the ribs in insanity, both chemically, microscopically, and by means of breaking weights, and he comes to the conclusion that in chronic diseases of the central nervous system, especially in insanity, the ribs are apt to undergo considerable morbid changes, which give rise to increased brittleness, and hence predispose the bones to fracture from the slightest violence.

Now, in seeking to discover the pathological significance of the changes above noted, it is necessary to call to mind the failure of nutrition which is so marked a feature of many cases of insanity, and especially, perhaps, of general paralysis. Dryness and brittleness of hair, harshness of skin, and many other changes of like nature, are facts with which asylum physicians are thoroughly familiar, and there is nothing remarkable in the circumstance that the same failure of nutrition should extend to the osseous system, and declare itself by a tendency to rarefaction of the compact tissue. This, indeed, would appear to be the true explanation of the numerous cases above noted, in which the changes were slight, and in the direction of thinning of the bone and a slight openness of the compact structure. Such changes, however, are by no means peculiar to insane cases, but occur, doubtless frequently, in exhausting diseases, although there appears a common tendency in insanity to this condition.

It is otherwise, however, with regard to the cases of very porous ribs above described, which appear to be genuine examples of "osteoporosis," a distinct disease of the osseous system, characterised not so much as is osteomalacia by decalcification of existing bone, but by a process of gradual absorption and rarefaction of its structure. Such indeed is it described by Cornil and Ranvier,† and the writer's observations bear out this view. The bones chiefly attacked are the ribs and vertebræ, and if the disease progresses to any extent, the vertebral column becomes much curved, and it has happened

* St. Petersburg Inaugural Dissertation, No. 97, 1889, abstracted in *Medical Chronicle*, Oct. 1890.

† "Pathological Histology."

* *British Medical Journal*, Sept. 29, 1883.

to the writer more than once to witness gradually diminishing height from this cause. The disease appears to be more common in females than males. The ætiology of the affection is obscure. It is not confined to lunatics, and although it appears to be relatively common among them, comparative statistics are difficult to obtain. It is probable enough that a trophic nervous lesion may underlie the process in many cases, and this would doubtless, if correct, serve to explain the relative frequency with which the disease occurs in insane persons.

Taking, then, a general survey of the question, the following conclusions would appear to be justified:—

The ribs of lunatics may be perfectly normal, but probably this is so in a minority of cases. It is more common to meet with slight changes of structure in the direction of slight thinning of the layer of compact bone immediately beneath the periosteum, and some tendency to openness of structure in this compact layer itself, the effect of which changes would be to render the bone more liable to fracture; such changes being, doubtless, correlated with the general failure of nutrition, which is so marked a feature of many cases of insanity.

In a minority of cases, however, the changes go far beyond this, and are characterised by extensive absorption of the Haversian systems, producing great rarefaction of the compact substance, bringing these cases into line with those of genuine osteoporosis; such cases, although occurring in the sane, being probably more common in the insane, and possibly having their origin in a trophic nervous lesion.

JOSEPH WIGLESWORTH.

BORDERLAND CASES.—Those cases of mental derangement who, while their condition renders removal from home desirable, are not certifiable. Their condition would fall under the Greek phrase *ἡμι μανίς*. They give rise to great anxiety both to their friends and to the doctor. The former are distressed in various ways by the alteration of character; the latter is fully alive to the mental disturbance, but cannot easily meet the requirements of the Lunacy Act, in writing a statement specifying such morbid mental symptoms as legally constitute insanity known to them from a personal interview with the patient. The increasing practice of admitting voluntary boarders into asylums does not remove the difficulty, because (1) borderland cases are frequently persons who would be the last to place themselves under care, and (2) they ought not, as a rule, to be placed in companion-

ship with patients more advanced in mental derangement. (See SINGLE PATIENTS.)

BOULESIS (*βούλησις*, a willing). The will, or the act of exercising the will.

BOULIMIA (*βοῦ*, an abbreviation of *βοῦς*, used as an augmentative particle; *λιμός*, hunger). Another form of Bulimia (*q.v.*).

BOUQUET DE MALADES.—A French term for the peculiar odour alleged to arise from patients suffering from mental disease—*e.g.*, Acute Mania.

BOVINA FAMES (*bovinus*, pertaining to cattle; *fames*, hunger). A synonym of Bulimia.

BRACHUNA (Arab.). An old term for nymphomania or satyriasis. A synonym of *Acrai* (*q.v.*).

BRACHYCEPHALIC (*βραχύς*, short; *κεφαλή*, head). This term is used for a skull the transverse diameter of which exceeds a certain limit. The term *cephalic* is applied to the breadth of the skull multiplied by 100 and divided by its length. If above 80, the skull is called brachycephalic. This form is found among the typical Mongolians occupying the central parts of Asia, and the aborigines of America.

BRADÆSTHESIA (*βραδύς*, slow; *αἴσθησις*, perception). Slowness of perception and response.

BRADYMASESIS, BRADYMASISIS or **BRADYMASTESIS** (*βραδύς*, slow; *μάσησις* or *μάσσησις*, from *μασάομαι* or *μασάομαι*, I chew). Terms to express difficulty of mastication due to lesion of the motor portion of the fifth nerve, or to general paralysis.

BRADYPHRASIA (*βραδύς*, slow; *φράσις*, speech). Morbid slowness of speech due to over-fatigue or inertia of the nervous system. The slowness of speech depending on slowness of mental operation. (See SPEECH, DISORDERS OF.)

BRADYPHRASIA INTERRUPTA (*βραδύς*; *φράσις*; *interrumpo*, I break asunder). Slow speech, with longer or shorter distinct pauses. (See SPEECH, DISORDERS OF.)

BRAIDISM.—A synonym of Hypnotism, to commemorate the name of Braid of Manchester, who studied and explained certain phenomena of the nervous system arising from the physical and psychical condition of the person operated on. These phenomena, to which he gave the name Hypnotism, are induced “by a continual fixation of the mental and visual eye upon an object with absolute repose of body, and general quietude.” As the experiment succeeds with the blind, he considers that “it is not so much the

optic, as the sentient, motor, and sympathetic nerves, and the mind, through which the impression is made." Braid published in 1843 "Neuroypnology, or the Rational or Nervous Sleep considered in relation with Animal Magnetism"; in 1846, "The Power of the Mind over the Body," and "Observations on the Nature and Treatment of some forms of Paralysis"; and in 1853 a memoir "On Hypnotic Therapeutics," in the seventeenth volume of the *Monthly Journal of Medical Science*. (See HYPNOTISM.)

BRAIN, CHEMICAL CONSTITUTION OF.—The brain possesses a more highly complicated chemical constitution than any other part of the animal or human body; its ingredients are more numerous, more intricately constituted, and more diversified than those of any other organ or system. Of the constituents a number are peculiar to the brain, and these are endowed with great stability in a chemical sense, united with great sensitiveness to reacting influences coming from without. As they are isolated by means which cannot be said to have a chemically destructive effect, they are called *immediate principles*. The manner in which they are combined to form either the protoplasm of the ganglionic cells, or the material of the grey and white nerve-fibres, is a function of life, and the combination ceases with life itself; the ganglionic protoplasm exhibits its *rigor mortis* as well as the white or medullary matter, which latter, by coagulation, is separated into two heterogeneous parts.

The immediate principles, organic and inorganic compounds which have been isolated from the brain are the following:—

I. GROUP OF PHOSPHORISED PRINCIPLES OR PHOSPHATIDES.

- A. *Sub-group of Mono-nitrogenised Mono-phosphatides* (N : P = 1 : 1).
 (1) Lecithins; (2) kephalins; (3) paramyelins; (4) myelins; (5) (sphingomyelic acid, a product).
- B. *Sub-group of Di-nitrogenised Mono-phosphatides* (N : P = 2 : 1).
 (1) Amidomyelins; (2) amidokephalins; (3) sphingomyelins (apomyelins); type of the diamidated phosphatides which contain no glycerol.
- C. *Sub-group of Di-nitrogenised Di-phosphatide* (N : P = 2 : 2).
 Assurin.
- D. *Sub-group of Nitrogenised Phosphatide-sulphatide*.
 Cerebro-sulphatide, body from group of cerebrinacides, containing probably phosphorus, nitrogen, and sulphur.

E. *Sub-group of Non-nitrogenised Monophosphatides*.

- (1) Lipo-phosphoric acid; (2) buto-phosphoric acid; (3) (kephalo-phosphoric acid, a product).

F. *Inorganic Bases existing in the Brain in Combination with Phosphatides*.

II. GROUP OF NITROGENISED NON-PHOSPHORISED PRINCIPLES.

A. *Sub-group of Cerebrosides* (Cerebro-galactosides).

- (1) Phrenosin; (2) kersasin.

B. *Sub-group of Cerebrinacides*.

- (1) Cerebrinic acid; (2) sphærocerebrin; (3) other principles.

C. *Sub-group of Cerebro-sulphatides*.
 Body containing sulphur.

D. *Sub-group of Amidolipotides, or Nitrogenised Fats*.

- (1) Bregenin; (2) krinosin.

E. *Sub-group of Alkaloids*.

- (1) Hypoxanthin; (2) gladiolin; (3) tennysin.

F. *Sub-group of Amido-acids and Amides*.

- (1) Leucin and homologous principles; (2) tyrosin; (3) urea; (4) diamides, products from phosphatides.

III. GROUP OF PRINCIPLES COMPOSED OF THREE ELEMENTS ONLY.

A. *Sub-group of Alcohols*.

- (1) Cholesterin; (2) phrenosterin.

B. *Sub-group of Carbohydrates*.

- (1) Inosite; (2) glycogen.

C. *Sub-group of Organic Acids*.

- (1) Paralactic acid; (2) formic acid; (3) succinic acid.

IV. GROUP OF ALBUMINOUS SUBSTANCES.

A. *Sub-group of Nitrogenised Sulphatide Phosphatides*.

- (1) Neuroplastin; (2) gangliocytin; cytophosphatide (a nuclein).

B. *Sub-group of Nitrogenised Sulphatides*.

- (1) Albumen; (2) Collagen.

V. GROUP OF INORGANIC PRINCIPLES

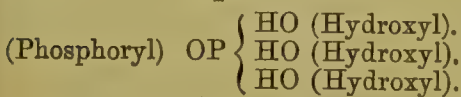
(including both acids and bases, and salts, either free or in combination with many of the foregoing organic principles):

- (1) Sulphuric acid; (2) hydrochloric acid (as chlorine in chlorides); (3) phosphoric acid; (4) carbonic acid; in combination with immediate principles, forming their bases, or in combination with phosphoric acid, and attached to immediate principles as phosphates, or in combination with mineral acids, as free mineral salts in the juices and extracts, (5) potash; (6) soda; (7) ammo-

nia; (8) lime; (9) magnesia; (10) copper; (11) iron; (12) manganese; and (13) alumina, silica, fluorine (doubtful).

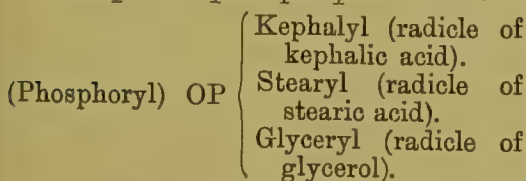
The group of *phosphorised bodies* contains the phosphorus in the form of phosphoric acid combined with from two to five organic compound radicles. They are not glycerides, as commonly defined, and have nothing in common with fats considered as glycerides, except that some of them contain fatty acids also present in fats, while others contain glycerol (which as far as we know at present is the invariable confederating alcohol of fats), and others again are free from this radicle. In accordance with this constitution the phosphatides differ in physical and chemical properties widely from fats. They are called *phosphatides*, because they are similar to but not identical with phosphates. Their basal or principal joining radicle is that of phosphoric acid, and in this acid one, two, or three molecules of hydroxyl may be replaced by radicles of alcohols, acids, or bases. To a molecule formed by three such substitutions there may yet be attached, by combination with one of the substituted radicles, a fourth radicle, and thus bodies of the following typical formulæ may be produced:

Phosphoric Acid.



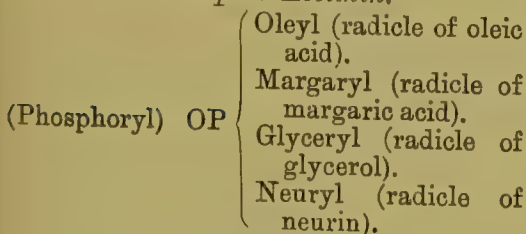
Non-nitrogenised Phosphatide.

Example: Kephalphosphoric Acid.



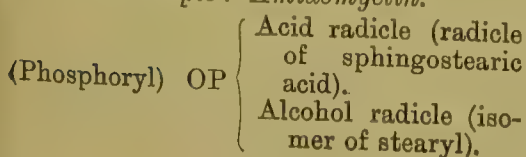
Nitrogenised Phosphatide.

Example: Lecithin.



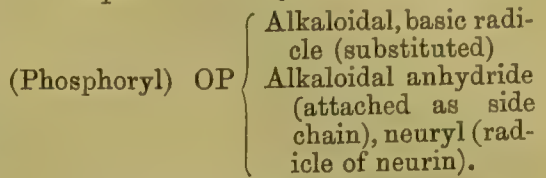
Di-nitrogenised Phosphatide.

Example: Amidomyelin.



Di-nitrogenised Phosphatide—(continued).

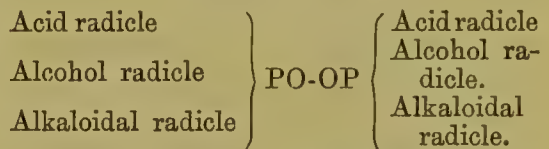
Example: Amidomyelin—(continued).



The bodies to which the foregoing formulæ may be applied contain the phosphorised radicle once, and may therefore be termed *monophosphatides*; but there are present in the brain and other protoplasmic centres, bodies which contain the phosphorised radicle twice, and which may therefore be described as *diphosphatides*. The immediate principle representing this sub-group contains about seven per cent. of phosphorus, and may perhaps be constituted according to the following formula:

Di-nitrogenised Diphosphatide.

Example: Assurin.



Bodies analogous to phosphatides are distributed over many tissues, and the bile (of the ox) contains a phosphatide, which in its crystallised platino-chloride compound contains four atoms of nitrogen upon one of phosphorus (formula: $\text{C}_{82}\text{H}_{164}\text{N}_4\text{PO}_{36}2\text{HCl} + 2\text{PtCl}_4$). Similar bodies are contained in the blood-corpuscles and other cell-structures forming the nuclei.

Of the phosphatides, some are entirely soluble in water; some are soluble in water in a certain measure and manner. When they are in the dry state and are placed in pure water, they sink to the bottom, and are at once wetted by the water. Thus their specific gravity is shown to be greater than that of water, whereby they are sharply distinguished from fats. By prolonged contact with water they swell, become transparent, diffused, emulged, and at last partially dissolved. Such solutions, although filterable through the finest paper, cannot be obtained clear; they are imperfect or incomplete solutions. Some phosphatides can be obtained as clear solution by dialysis of their cadmium salts—*e.g.*, amidomyelin. They combine with acids, alkalies, earths, and salts, and many metals, and when the combinants are by themselves soluble in water, the compounds are dissociated by water, or in a dialysing apparatus, dialysed. In the hydrated state they are colloids, although

like peptones they dialyse slowly, but they are also crystalloids; for all crystallise in masses of microscopically well-defined crystals from some solvent or other, most of them particularly from absolute alcohol. When absolute alcohol is allowed to act at a higher temperature upon larger quantities of phosphatides than it can dissolve, the latter lose water, and become *anhydrites*, which are insoluble in alcohol. By long contact with hot water they become again hydrated and soluble. This feature was formerly believed to be the result of irremediable decomposition. Another very remarkable property of phosphatides is that they combine with sulphides of metals—*e.g.*, cadmium sulphide, and these compounds, in the presence of excess of sulphuretted hydrogen, are soluble in ether. The cadmium chloride compounds of the phosphatides are very useful for their treatment and separation. Then the salts of three at least of these phosphatides, by their different bearing towards, can be separated by benzol; lecithin cadmium chloride is soluble in cold benzol; paramyelin cadmium is soluble in hot benzol, but deposited from cold; amidomyelin cadmium chloride is insoluble in either hot or cold benzol. The principal *lecithin*, of which at least 16 grammes are present in every human brain, may be defined as *oleo-palmito-glycero-neuro-phosphatide*, and has the contracted formula $C_{42}H_{82}NPO_8$. It is a white crystalline body very soluble in spirit and ether. It dissolves in oil of vitriol with a yellow colour, and this solution, on the addition of sugar-syrup, gives a deep purple reaction, which is almost identical spectroscopically with the reaction which biliary acids, cerebrosides, or oleic acid give under the same conditions. Lecithin combines with hydrochloric acid, forming a stable crystallised salt; it combines with cadmium chloride, forming a compound which crystallises from hot alcohol. It also combines with platinic chloride and hydrochloric acid, and this compound is soluble in ether. It does not combine with lead.

The principle *kephalin* (there are five modifications known) may be defined as *kephalo-stearo-glycero-neuro-phosphatide*, and has the formula $C_{43}H_{81}NPO_9 + aq$. It is the most unstable of all phosphatides, owing to the peculiarities of the kephalic acid contained in it. It is present in the brain in very large quantities. It is soluble in water, particularly in the presence of a little ether, very soluble in ether, and little soluble in alcohol. It forms compounds with acids, bases, salts, and metals, most of which are soluble in ether, insoluble in alcohol, but they do not

easily crystallise. The stearic acid obtained from it by chemolysis has melting point $69.5^{\circ}C$. Sphingostearic acid from sphingomyelin (*see* below) melts at 57° , and neuro-stearic acid from phrenosin at 84° . Both these acids are isomers of common stearic acid. The latter is also obtained from the cholophosphatide of bile.

Paramyelin, $C_{38}H_{75}NPO_9$, is a white firm solid body crystallising from boiling spirit in rhombic and hexagonal plates and needles of microscopic dimensions. Unlike lecithin, it does not form a stable hydrochlorate, but a very stable crystallised salt with cadmium chloride, which is soluble in hot benzol, insoluble in cold. Paramyelin yields solid fatty acids by chemolysis which give the purple oleo-cholide reaction.

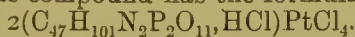
Myelin, $C_{40}H_{75}NPO_{10}$ crystallises from spirit, and is little soluble in ether. It combines with lead like a dibasic acid, and this compound is insoluble in alcohol, ether and water. (Lecithin and paramyelin do not combine with lead; kephalin combines with lead, and the compound is easily soluble in ether.) It gives the purple oleo-cholide reaction.

Amidomyelin, $C_{44}H_{92}N_2PO_{10}$, is the first di-nitrogenised monophosphatide, and a dipolar alkaloid, as in its saturated combination with cadmium chloride, it contains a molecule of this salt for every atom of nitrogen, $C_{44}H_{92}N_2PO_{10} + 2(CdCl_2)$, therefore nearly 30 per cent. of $CdCl_2$. It also combines with platinum chloride, but not definitely with hydrochloric acid. Amidomyelin crystallises in snowy white microscopic plates and needles, which are mostly united in star-like groups. With oil of vitriol and sugar it immediately yields the purple oleo-cholide reaction. This body has the remarkable property that when its clear watery solution, obtained by dialysis of the cadmium chloride salt, is heated to from 42° to $44^{\circ}C$. (high fever heat) it coagulates and sets like a jelly.

Sphingomyelin ($C_{52}H_{104}N_2PO_9 + H_2O$) and *apomyelin* are types of the diamidated phosphatides containing *no glycerol*. They are the principal phosphatides contained in the so-called cerebri-mixture, which remains when the *white matter* deposited from the hot alcohol extract of the brain is extracted with ether. Sphingomyelin crystallises beautifully from hot alcohol in needles, stars, and hexagonal plates, is insoluble in ether, combines with cadmium chloride, and this compound also crystallises from hot alcohol. It yields *neurin* on chemolysis, and thereby is allied to the mono-nitrogenised phosphatides; but on further chemolysis its mono-nitrogenised torso yields (after detach-

ment of the neurin) an alkaloid related to or identical with that alkaloid which characterises the products of chemolysis of the *cerebrosides* (see *Sphingosin* below). Sphingomyelin is therefore a link between phosphatides and cerebrosides, by containing a radicle also present in each of these groups. It yields an isomer of stearic acid, which melts at 57°, *sphingostearic acid*. There are probably bodies belonging to this group which have as high a formula as $C_{58}H_{115}N_2PO_7$, or $C_{58}H_{121}N_2PO_{10}$.

The *di-nitrogenised diphosphatides* are represented by *assurin*, which as platinum chloride compound has the formula



The *nitrogenised phosphatide sulphatides* contain *sulphur* in organic combination; a preparation contained as much as 4 per cent. of sulphur.

The *non-nitrogenised monophosphatides* behave as acids and enter into combination with lead, and with barium; one is solid, the other liquid at ordinary temperatures. A third is a product obtained from kephalin by chemolysis. The two which are immediate principles have been termed *lipo-phosphoric* and *buto-phosphoric acid*.

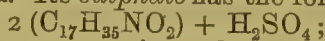
The phosphatides as they occur in the brain always retain salts and metallic oxydes; of salts phosphates prevail. All the phosphoric acid in this mineral form is saturated by calcium, $3(CaO)P_2O_5$, magnesium, $3(MgO)P_2O_5$, or potassium, $3(K_2O)P_2O_5$, but there is a certain quantity of potassium, sodium, and calcium uncombined with mineral acid, and which must therefore have been in direct combination with the phosphatides.

The *nitrogenised, non-phosphorised substances* of the brain have the affinity for water of the nitrogenised ones to the extent of swelling to gelatinous masses; but they do not go to the state of apparent or real solution. All dissolve in hot benzol or alcohol, and are deposited almost entirely on cooling of these solvents. They are all firm compounds, and do not easily oxydise or decompose; they possess substitution poles, where hydrogen is replaceable by metalloids or compound radicles; compounds with salts, oxydes or acids are all unstable.

The *cerebrosides* or *cerebro-galactosides* are all white, and more or less opaque. They are deposited from hot alcoholic solutions in minute microscopic crystalline particles, arranged in various composite forms, such as balls, branched masses, or rosettes. They are almost insoluble in water, and do not swell when boiled in it. They are insoluble in ether. They are separated from the cerebrinacides by lead

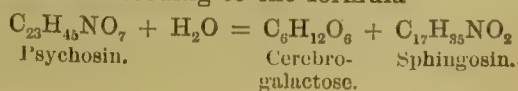
acetate and ammonia, the lead combining with the cerebrinacides to form insoluble combinations.

Phrenosin is the type of cerebrosides; it crystallises in rosettes, and gives the oleo-cholesterol purple reaction with oil of vitriol only. Its formula is $C_{41}H_{79}NO_3$, which is supported by the results of chemolysis. This yields a crystallised sugar, *cerebrose* or *cerebro-galactose*, $C_6H_{12}O_6$, which is also obtained from sugar of milk; by the side of this there is obtained an uncrystallisable sugar. Cerebrose is dextro-rotatory, reduces copper solution in presence of excess of alkali, and tastes sweet. It is precipitated from its watery solution by basic lead acetate. In this affinity for lead cerebrose resembles *inosite*, the sugar naturally contained in the brain, and obtained as an educt from the water extract; but it is easily distinguished from inosite by its power over polarised light and potassio-cupric tartrate, reactions which inosite does not possess. The solid products of the complete chemolysis of phrenosin, after removal of the cerebro-galactose solution, are *sphingosin*, an alkaloid, obtained as sulphate, and *neurostearic acid*. *Sphingosin* has the formula $C_{17}H_{35}NO_2$; it is easily soluble in alcohol and ether, and left by them in a crystalline state; it is hardly soluble in boiling water; it gives no purple oleo-cholesterol reaction with oil of vitriol alone, but on addition of sugar-syrup the deep purple is immediately produced. Its *sulphate* has the formula—



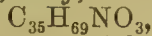
it is a very precise salt, insoluble in alcohol and ether, but soluble in them in the presence of excess of acid. *Sphingosin hydrochlorate*, $C_{17}H_{35}NO_2 + HCl$, crystallises in spear-shaped needles more soluble in hot than cold alcohol, soluble in hot water, crystallising from cold. Sphingosin is reprecipitated from its salts in watery suspension by excess of caustic alkali, and while hot floats on the top as an oil, easily soluble in and separated by ether.

Psychosin, $C_{23}H_{45}NO_7$, is the cerebroside or cerebro-galactoside of sphingosin. It results from the chemolysis of phrenosin by baryta or sulphuric acid, neurostearic acid being eliminated; it is soluble in alcohol, but in water only with the aid of hydrochloric acid. Psychosin is a strong base, and gives the oleo-cholesterol reaction with oil of vitriol alone. With water it swells, and exhibits the features of a colloid. Its decomposition ensues according to the formula—

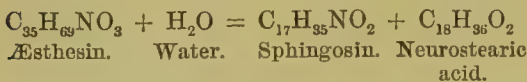
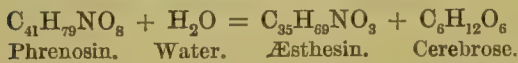


When psychosin is heated gradually in a current of air to 210° C., it loses 15.63 per cent. in weight, or just four molecules of water, and leaves a brown body, soluble in ether, the *caramel of psychosin*. Phrenosin also yields a *caramel* under similar influences, the loss being 10.2 per cent., and also corresponding to four molecules of water.

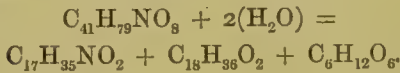
The intermediate products of the cerebrosides with sulphuric acid all support the theory of their constitution. Phrenosin is first hydrated; next the *cerebrose* is split off, and a weakly basic, almost neutral, body, *æsthesin*,



results. This, then, takes up another molecule of water, and splits up into *sphingosin* and *neurostearic acid*. The following formulæ illustrate the entire process of the splitting up of phrenosin—



or analytically in one formula, when the chemolysis is completed directly



The chemolysis of pure phrenosin gives manifold proof of its constitution by slight variations of the process. Thus when it is decomposed by sulphuric acid in absolute alcohol, sulphate of psychosin remains dissolved, while the *neurostearic acid* combines with ethyl, and floats on the top of the alcohol, as an oil while hot, a solid on cooling. This *ethyl neurostearate* has the formula $C_{20}H_{40}O_2$ or $(C_2H_5)C_{18}H_{35}O_2$. It can be distilled unchanged in *vacuo*.

Cerebrose is characterised as galactose by its crystallisation, its optical power (its specific limited rotation being +78°.93 at 18° C.) and its reducing power over cupro-potassic tartrate. To indicate its origin and nature, it may, when necessary, be designated as *cerebro-galactose*. In certain diseases of the brain, accompanied with excitement, and after some injuries, it appears in the urine, and is the essence of a kind of *glycosuria*, properly termed *cerebral diabetes*. The same radicle, while contained in the phrenosin and other cerebrosides, gives the material for the *amyloid corpuscles*, which constitute the essential product of the *amyloid degeneration of the spinal marrow*. This is always present as the essence of *locomotor ataxia*, and in several such cases we have found the central canal literally

stuffed with amyloid corpuscles, and the section of the marrow at all heights strewed with them.

Another cerebro-galactoside is *kerasin*, $C_{42}H_{85}NO_8$, which accompanies phrenosin, but is present in the brain in much smaller quantities. It crystallises in microscopic needles. Its solution in hot chloroform sets into a glass-like transparent mass. With oil of vitriol alone it gives the purple reaction slowly, with oil of vitriol and sugar-syrup at once.

The *cerebrinacides*, or *cerebrin bodies* which combine with metallic oxydes comprise a series of bodies; some of them crystallise in sphero-crystals, or in groups of microscopic needles. Their *lead compounds* are insoluble in boiling alcohol; their *barium compounds* also, but in different proportions. The *lead compounds* are split into two sub-series by benzol, in which one sub-series is insoluble, another soluble. The soluble part contains the lead salt of cerebrinic acid.

Cerebrinic acid, $C_{59}H_{113}NO_9$, crystallises from alcohol, yields a caramel at 210°, and therefore contains a sugar. This caramel, like all caramels of the cerebrosides, is soluble in ether.

The *lead salts insoluble in ether* are at least five in number. The best characterised of the cerebrin bodies isolated from them is *sphæro-cerebrin*, $C_{58}H_{123}NO_{17}$. Another cerebrinacide has the formula $C_{55}H_{113}NO_{21}$. The varying functions of these bodies are appreciable by the fact, that while the cerebrosides contain from 16.85 to 18.42 per cent. of oxygen, this element rises in cerebrinic acid to 20.05 per cent., in sphæro-cerebrin to 24.94 per cent., in the (by quantity) principal product to 28.94 per cent., while the carbon falls *pari passu* from 69.54 per cent. and 68.44, to 67.00, 62.57 and 59.28 per cent.

Amongst these bodies is one containing *sulphur* in organic combination, a *sulphatide cerebrinacide*, or *cerebro-sulphatide*, its combination with baryta contains 4 per cent. of sulphur. Its presence in the lead salt is manifested by the salt gradually assuming a dark, partly black colour.

The *amido-lipotides* or *nitrogenised fats*, are a very remarkable part of the peculiar ingredients of the brain.

Bregenin, $C_{40}H_{87}NO_5$, is soluble in and crystallisable from alcohol. It fuses between 62° and 65°, and exhibits a peculiar viscosity, which disappears at 76°. When heated with much water it fuses, like a fat, on the top of it. But on agitation and cooling it becomes semi-solid, swells by absorption of water, and diffuses in it.

Krinodin, $C_{38}H_{77}NO_5$, crystallises in long hair-like threads, is soluble in boiling, quite insoluble in cold, ether. It does not fuse below the heat of boiling water.

Of *alkaloids* which can be separated as immediate principles, the brain contains at least four. One is *hypoxanthin*, $C_5H_4N_4O$. A second one, isolated as hydrochlorate aurochloride, has formula $C_{15}H_{20}N_6O_5 \cdot HCl \cdot AuCl_3$. The *third alkaloid* smells of sperma; the fourth, in the gold-salt, is represented by the formula, C_3H_4NO . [*Neurin* is never found as an immediate principle, but only as a product of artificial decomposition.]

Of *amido-acids* and *imides*, the presence of a little *leucin*, $C_6H_{13}NO_2$, and *tyrosin*, $C_9H_{11}NO_3$, has been established.

Of the group of immediate principles of the brain which are composed of three elements only, namely, *alcohols*, *carbohydrates* and *acids*, the most important one as regards quantity is *cholesterin*, $C_{26}H_{44}O$. It is an alcohol, distinguished by its crystalline form, its reactions and its connection with the biliary function of man, many derangements of which cause it to be deposited in the form of concretions, so-called gall-stones. It occurs in many isomeric varieties, as *phrenosterin*, *ischolesterin*, *phytosterin* (in plants), and *paracholesterin*. *Inosite*, $C_6H_{12}O_6$, is a sugar (carbohydrate), and hexadynamic alcohol, common to plants and animals. It does not rotate polarised light, and does not undergo the alcoholic, but easily the lactic acid fermentation, the resulting lactic acid being optically inactive. It yields a compound with copper, which has the composition expressed by the formula $C_6H_{12}O_6 + 3CuO + 3H_2O$, being a trihydrate of tricupric inosite.

Of organic acids present in the brain, the principal one is *lactic acid*, $C_3H_5O_3$, being the same as that occurring in flesh, *sarkolactic* or *paralactic acid*, which is optically active; this rotating power is very variable in its different hydrates, anhydrides, and salts. Besides this the brain contains some *formic acid*, CH_2O_2 , and some *succinic acid*, $C_4H_6O_4$. The significance of the presence of the latter in nerve marrow is probably connected with that of the disintegration of the albuminous substances.

The *albuminous substances of the brain* are numerous, and of very different qualities. The brain as a whole is an aggregated mass of bioplasm, which derives its peculiarity mainly from specific chemical additions. The *stroma* of the bioplasm is mainly constructed of albuminous substances, in which the specific matters are

distributed, or with which they are combined in such a manner as to produce the living brain-tissue or *neuroplasm*, composed of *cells and fibres*. It contains small quantities of *soluble albumen*, partly exhibiting the properties of serum-albumen; it further contains *fibrin*, and a substance characterised by its function as *plastin*; but as it differs slightly from the plastin of other organs, it should be termed *neuroplastin*. The nuclei of the ganglionic cells are composed of a substance termed *gangliocytin*, which, as it contains phosphorus, is also termed *cytophosphatide*; its congeners in yeast cells bear the name of nuclein. The total relative weight of the albuminous matters of the brain free from its membranes, amounts to from 7.0 to 8.0 per cent., varying in different parts of the brain. Their chemolysis has yielded remarkable products, such as *glycoleucin*, $C_6H_{13}NO_3$, an isomer of common leucin; *lucein*, an alkaloid, $C_6H_{12}NO_2$; an alkaloid of the formula, $C_{12}H_{23}N_3O_6$; and most remarkable of all, a considerable amount of peculiar *fatty acids* of high atomic weight. (Acetic and formic acid, which are produced by the chemolysis of all albuminous substances, are not here considered.) These fatty acids seem to be the derivatives of actual chemical nuclei or radicles set in the albuminous molecules in the same manner as tyrosyle, leucyle, and the radicles of all the other acids, amido-acids, alkaloids, and neutral substances obtained by chemolysis or patholysis; neuroplastin therefore possesses a highly complicated specificity.

The *mineral acids, bases and salts* already enumerated above are partly distributed amongst the organic constituents, partly free in the juices. The grey tissue contains 1 per cent. of ash; the white about 1.7 per cent. An ordinary human brain yields from 18 to 20 grams of ash and incombustible residue, of this however 48 per cent. is phosphoric acid in the free state, mostly derived from the burning of the phosphatides. Much phosphoric acid is volatilised. The acids can in effect not be ascertained by combustion; and only the bases are obtained in an approximately complete manner.

Grey tissue of the human brain contains about 85 per cent. of water, expelled at $95^\circ C.$; 7.6 per cent. of neuroplastin, 2 pro mille of inosite, and 1 pro mille of paralactic acid. The *white tissue* on the other hand contains 70 per cent. of water expelled at $95^\circ C.$; 8.6 per cent. neuroplastin, only 0.04 per cent. of paralactic acid, and 0.2 per cent. of inosite. The ether-extracts from (previously dried) grey tissue

are about 2.7 per cent., while those from (previously dried) white tissue are more than 11 per cent.; the cerebrins and myelins in white tissue are at least 7 per cent., while those from grey tissue remain below 0.5 per cent. A human brain contains at least 16 grams of pure lecithin, also about 4 per cent. of cerebrosides, mainly phrenosin, therefore 60 grams of this body; and as this contains or yields 25 per cent. of its own weight of cerebrose it follows that an average brain of 1500 grams in weight contains 15 grams of the radicle of this sugar in combination with its cerebroside. This is, therefore, a very much larger quantity of, so to say, potential sugar than is mostly present in the liver as glycogen, and this quantity should be remembered when the destructive effect of cerebral glycosuria by the unloosening of the cerebro-galactose has to be appreciated.

A quantitative analysis of the brain involves at least three hundred quantitative determinations of definite bodies or compounds. Each of the four divisions of the brain, and each of the two varieties of tissue, the white and the grey, would thus require at least about fifty quantitations for chemical characterisation.

The varying functions of all these remarkable bodies, as acids, alkaloids, alcohols, neutral substances; their homologies, analogies, isomerisms; their reactions with water, and a multitude of chemical reagents, by which most of them show their alternating rôle of colloid and crystalloid to be dependent on the environment—are a spectacle of superlative chemical, physiological, and pathological interest. Pathological changes proceed on the lines of chemolytic cleavage, so that, *e.g.*, the products of softening of the brain are identical, as regards phosphatides, with those of the influence of caustic alkali; glycerophosphoric, oleic and margaric acid have been extracted from softened portions of the brain. This fact supports for the phosphatides what has been proved above for the cerebrosides. But in disease normal ingredients and constituents do not only decompose, but abnormal products accumulate, either being formed locally or brought on by the blood, such as poisons—*e.g.*, arsenic, antimony, narcotics—and numerous other toxic agents. In cholera we have found the cerebro-spinal fluid to contain two per cent. of urea, besides much other matter.

We must close this short and imperfect sketch of a colossal subject* (which we

have endeavoured to press into the space to which we are limited), with the expression of the hope that it may attract the attention of the younger members of that part of the medical profession who make psychological medicine their especial study. We believe that by studying mental diseases on the lines here indicated they would reap a speedy, rich, and practically useful harvest of new discoveries.

J. L. W. THUDICHUM.

BRAIN, CONVOLUTIONS OF. (See CONVOLUTIONS OF THE BRAIN.)

BRAIN, HISTOLOGY OF. (See BRAIN, ANATOMY OF.)

BRAIN, PHYSIOLOGY OF.—The question of the functions of the brain is so vast and the different points are so involved, that it is difficult to give a complete account in a short space; but an attempt will be made to give a succinct description of what is known of the functions of the different parts of the cortex.

The views about the hemispheres of the brain held by Flourens were those which were generally accepted, and it was considered that the hemispheres were purely intellectual, and if one part were removed its loss might be compensated by the remainder. It was not till the experiments of Hitzig in Germany and Ferrier in this country that it could be shown that certain parts of the cortex differed from other parts by the fact that when stimulated electrically, movements in various regions of the body were the result.

Although the view that there were definite regions in the cortex, where movements were represented, was at first violently combated, at the present time probably no one who has studied the question has any doubts on the subject.

Furthermore, it has been shown by Ferrier and others that not only are movements evoked when these particular points are stimulated, but that the converse is also true—*i.e.*, that paralysis of the part is produced when these same points are removed in the highest animals. Besides the part of the cortex giving rise to motor manifestations, other parts have been found to be the seat of sensory functions, including those of the special senses.

The question of localisation, which was at first proved entirely by experimental physiology, has since been confirmed by the evidence of clinical medicine, and especially by the observations of Charcot in France, and by Hughlings Jackson in this country—the last named having anticipated from a clinical and pathological

Constitution of the Brain, based throughout upon Original Researches." London, 1884, 8vo, pp. 262

* The chemical composition and analysis of the brain are discussed and described in a more detailed manner in a "Treatise on the Chemical

standpoint the facts proved to exist by experimental work.

The investigation of the functions of the brain is, however, much more difficult than it would be if we had only to localise the various motor and sensory functions, for besides these the brain is the organ of mind, and along with these objective functions there is the subjective mental state; and until we know the exact localisation and the functions of the parts of the brain subserving the objective side, it will be difficult to place the subjective condition on a satisfactory basis.

Although in insanity the brain is diseased, either functionally or organically, the seat of lesion is in a different place from that which produces paralysis of motor or sensory functions, unattended by mental changes.

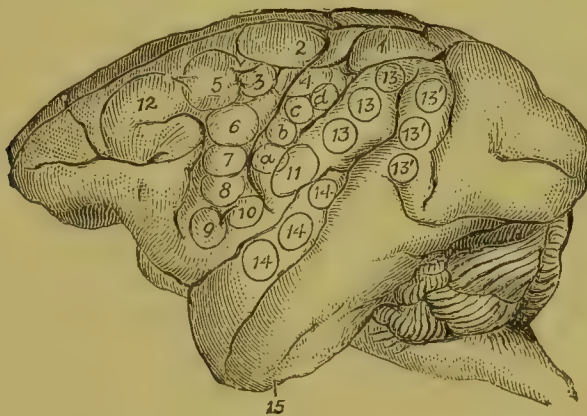
We have therefore—so to say—a mental

3. Basal ganglia; 4. Cerebellum; 5. Corpora quadrigemina.

1. *The cortex of the Brain.*—The most advantageous way to understand this complicated structure is to take first those parts of which the function is known, leaving the rest to later consideration. The first great distinction is between the (1) excitable and (2) the non-excitable parts of the cortex.

(1) *The excitable part*—i.e., from which movements can be evolved by faradic electric stimulation—is grouped, in the monkey, around the fissure of Rolando, and comprises the ascending frontal and parietal convolutions with the parietal lobule, and the posterior parts of the three frontal convolutions, as well as the corresponding part of the marginal convolution on the median surface of the hemisphere. Besides these parts, movements of the eyes

FIG. 1.



THE LEFT HEMISPHERE OF THE MONKEY (FERRIER).

1. The opposite hind limb is advanced as in walking; 2. Flexion with outward rotation of the thigh, rotation inwards of the leg, with flexion of the toes; 3. The tail; 4. The opposite arm is adducted, extended, and retracted, the hand pronated; 5. Extension forwards of the opposite arm: *a, b, c, d*, movements of fingers and wrist; 6. Flexion and supination of the forearm; 7. Retraction and elevation of angle of the mouth; 8. Elevation of the ala of the nose and upper lip; 9 and 10. Opening of the mouth, with protrusion (9) and retraction (10) of the tongue; 11. Retraction of the angle of the mouth; 12. The eyes open widely, the pupils dilate, and head and eyes turn to the opposite side; 13 and 13'. The eyes move to the opposite side; 14. Pricking of the opposite ear, head and eyes turn to the opposite side, pupils dilate widely; 15. Nostril of same side closed.

condition (intellect, thought) which may be deranged without affecting motion and sensation, and an objective sensori-motor part which may be paralysed without any affection of the mind, but the relation between the two it is difficult to define. In aphasia, however, we come upon a link which is intermediate between the intellectual and the sensori-motor, and it is by an exact examination of these cases, as has been done by Bastian and others, that the key to the position will be found.

After these preliminary remarks, the functions of brain will be described under the following headings: 1. Cortex; 2. Internal capsule and corona radiata;

have been obtained by Ferrier (Fig. 1, 13) from the angular and supra-marginal gyri and by Schäfer from the occipital, but not so readily as in the parts above described.

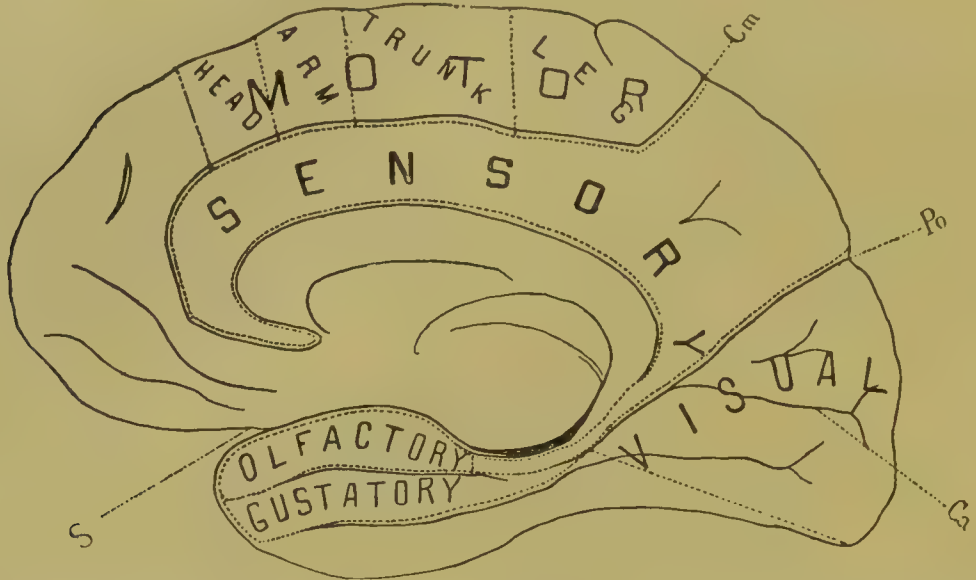
The arrangement of the representation of the different movements will be best understood if they are taken in some definite order, and the order which is most convenient is that of the degree of evolution of function, and the part of the brain along which to group these functions is the fissure of Rolando.

Beginning at the medium surface it has been found, in the monkey, by Horsley and Schäfer (Fig. 2) that besides movements of the limbs, the trunk muscles of the opposite side of the body are thrown into

action when the part of the marginal gyrus opposite to the ascending frontal convolution is stimulated. According to Dr. Ferrier, in the cortex next to this part, on the outer surface, are the upper ends of the ascending frontal and parietal convolutions, in which are repre-

and in front by a line drawn from the præ-central sulcus upwards to the middle line (Fig. 3). Below the area for the representation of the upper limb there is a narrow strip of cortex which Mr. Horsley and the writer (Fig. 3) found to give the movement of closure of the opposite eyelids

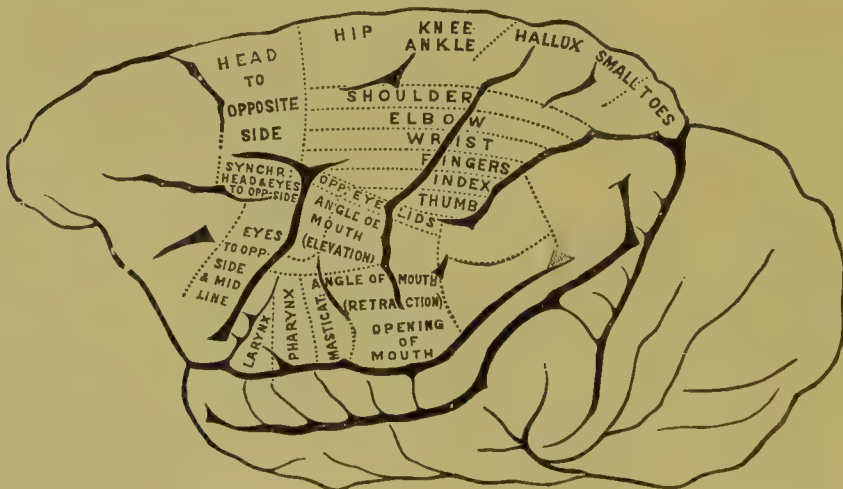
FIG. 2.



sented the movements of the lower limb as far out and down as the horizontal level of the superior frontal sulcus, and as far forwards as the vertical limit of the præ-central sulcus (Fig. 1). Below this area is the part for the representation of the upper limb, occupying the ascending

and also those of the same side when the current was stronger. Below this part and between the Rolandic fissure and the præ-central sulcus, elevation of the opposite angle of the mouth is obtained, while round the lower end of this fissure, retraction of the angle of the opposite side

FIG. 3.



frontal and parietal convolutions as far down as the genu or bend in the fissure of Rolando; it is bounded below by a line drawn from the upper end of the præ-central sulcus backwards through the genu of the fissure of Rolando, to the anterior end of the intra-parietal sulcus,

of the mouth can be elicited. Between the inferior end of the fissure of Rolando and the fissure of Sylvius, the bi-lateral movement of opening the mouth is represented; while in front of this and along the latter fissure, are the areas for the representation of the rhythmical movements of mas-

tication, of swallowing, and of the movement of adduction of the vocal cords. This brings us to the posterior part of the third frontal convolution, which has been shown by Broca to be connected on the left side with aphasia. The posterior part of the three frontal convolutions in front of the vertical limb of the præ-central sulcus and a line drawn between this and the middle line, alone remains. In the angle formed by the two limbs of this sulcus is the representation for the synchronous movements of turning the head and eyes to the opposite side; between the horizontal limb of this sulcus and the middle line, the head tends to move without or before the eyes, whilst below, the synchronous movement the eyes move before or without the head. It will thus be seen that these movements are very extensively represented—*i.e.*, over an area reaching from the median line nearly to the fissure of Sylvius; in connection with this large representation is the very important part, which these movements of the head and eyes take in directing those of the limbs. We thus see that beginning at the gyrus marginalis and passing along the fissure of Rolando, the different parts of the body are represented in this order:—trunk, lower limb, upper limb, face, mouth, and ending with the vocal cords at the most anterior inferior part, and in man with speech—*i.e.*, from the most simple to the most complex and highly evolved. In the monkey these areas are not limited by hard-and-fast lines, but at their borders they are merged together; for instance, at the border line where the areas for the representation for the upper and lower limbs and for the movements of the head meet, stimulation of this spot produces movement in all these three parts—these places have been termed border centres by Mr. Horsley and the writer. Further, it has been possible to define the areas of representation for the different segments of the limbs (Fig. 3); thus for the lower limb Mr. Horsley and the writer* have found that the different joints are represented in the monkey in the following order from before backwards—*viz.*, hip, knee, ankle, and hallux—situated in front of and behind the upper end of the fissure of Rolando—and the small toes in the parietal lobule (Fig. 3); and these different movements can be produced singly by using minimal stimuli of momentary duration, and they are therefore looked upon as primary movements, and as being most highly represented at these different places. In the upper limb area, the different segments are arranged along the fissure of Rolando in the order,

* "Phil. Trans. Roy. Soc. 1887-88."

from above down, of shoulder, elbow, wrist, fingers, index finger, and thumb, the three first being most represented in front of this fissure, while the three last are behind it—*i.e.*, they occur there as primary movements (Fig. 3). The thumb can be readily obtained as a single movement by momentary stimuli at a point behind the genu of the fissure of Rolando and between this and the anterior end of the intra-parietal sulcus. It will thus be seen that the upper limb agrees with the general arrangement of all the areas, in that the least evolved, the shoulder, is represented nearest to the middle line—*i.e.*, to the lower limb area; while the most highly evolved, the thumb, is nearest to the face area and the fissure of Sylvius.

The above authors have since stimulated the cortex of an orang outan,* and found a corroboration of the above results in the monkey, with this important difference, that the individual segments of a limb are represented singly; even the elbow, which is a very subordinate joint, being obtained alone as a single movement. In the lower limb the segments are represented singly, and in the order from below upwards of hip, knee, ankle, hallux and small toes. Furthermore, there are islands, so to say, of the cortex, in the ascending frontal and parietal which are inexcitable. It is highly probable that the arrangement in the orang is very similar to that which exists in the brain of man.

The exact localisation of the excitable cortex is of the highest value in determining accurately the seat of discharging lesions, causing the local epileptiform fits, which were first described by Dr. Hughlings Jackson.

(2) *Non-excitable cortex*.—Under this heading is comprised the rest of the cortex, not included in the foregoing description, and it may be divided into (a) the parts behind and below the excitable cortex, as well as the convolutions on the median surface of the brain, except the marginal gyrus, and (b) the frontal region anterior to the excitable area.

(a) In this part are contained the areas in which sensation and the special senses are represented, and it will be advisable to take first **Sensation**. It has been found by Ferrier that removal of parts of the gyrus hippocampi, and by Horsley and Schäfer (Fig. 2), that destruction of parts of the gyrus fornicatus produce loss of sensation of the other side of the body, but at present it has not been found possible to accurately localise the representation of the different parts of the body to definite

* "Proc. Roy. Soc. 1890."

regions of these gyri. It should be stated, however, that although most observers have failed to produce complete anæsthesia along with the paralysis resulting from removing parts of the excitable cortex, Horsley has found certain changes in sensation when these parts were removed in man, viz. :—slight loss of tactile sensation, so that the person cannot feel very slight touches in the limb, and usually localises the touch to a segment higher up than that touched, and loss of muscular sense.

Special Senses.—Of these the most important is that of *sight*, which is localised by most observers in the angular gyrus, situated around the posterior end of the parallel sulcus, and in the occipital lobe. There is much difference of opinion among observers as to the relative share of these two parts in the function of vision, but it appears from the observations of Ferrier, and Horsley and Schäfer, that complete permanent hemianopsia for the opposite field of vision is not produced unless both parts are removed. After ablation of one occipital lobe, hemianopsia is produced for the opposite field of vision—*i.e.*, on removing the left occipital lobe the animal is unable to see objects to the right of the middle line with either eye; this, however, is not permanent, but passes off in a few days. If, now in addition, the angular gyrus of the same side be removed, permanent hemianopsia is produced. When the angular gyrus of one side alone is removed, complete blindness of the opposite eye is caused, from which the animal recovers on the following day (Ferrier). In man, cases recorded by Sharkey and by Demange have shown that crossed amblyopia is produced by lesions of the angular gyrus; here the vision of the opposite eye is dim, and accompanied by a concentric diminution of the field, while in the eye of the same side there is a similar affection, though to a much less extent. Gowers sums up the question by the theory, that on the outer surface of the cortex, in front of the occipital bone (*i.e.*, the angular gyrus), there is a higher visual centre, in which the half fields are combined, and the whole opposite field is represented. It should also be mentioned that in word blindness lesions have been found in the left angular gyrus.

Hearing.—This sense has been found to be localised by Ferrier in the first temporo-sphenoidal convolution, lesion of which, in a monkey, caused deafness of the opposite ear. It should, however, be observed that after removing the first temporo-sphenoidal convolution, Sanger-Brown and Schäfer have been unable to discover any deafness in monkeys, while, on the

other hand, Gowers mentions two cases of tumour of the first temporo-sphenoidal convolution, in which there were fits beginning with an auditory aura referred to the opposite ear. At present, therefore, the question is *sub judice*. In the form of amnesia called word-deafness, the lesion has been found in the left first temporo-sphenoidal convolution.

The sense of *smell* is probably localised in the extreme anterior extremity of the temporo-sphenoidal lobe, as Ferrier found that the destruction of this part produced loss of smell on the *same* side in monkeys; and also that from an anatomical point of view, this part is very well-developed in animals with a keen sense of smell. A case was published by Dr. Hughlings Jackson and the writer (*Brain*, part xlvi.), in which there was a growth in the right hippocampal lobule, associated with epileptic fits, which were preceded by the sensation of an unpleasant smell.

Besides the above, *taste* has not yet been localised, but it seems probable that it is situated near the sense of smell.

(b) Non-excitable cortex in frontal lobe. This part is situated in front of the area for the representation of the head and eyes, and would, therefore, in the monkey, be bounded posteriorly by a vertical line drawn through the anterior end of the horizontal limb of the præ-central sulcus from the median line down to a point a few millimetres in front of the anterior end of the fissure of Sylvius. All the cortex in front of this line is inexcitable. It has been removed by Ferrier, and also by Horsley and Schäfer, but without producing any motor or sensory symptoms. The first named observer noticed a decided mental deterioration after this part had been removed from both hemispheres, and the animal had lost, to all appearance, the faculty of attentive and intelligent observation; but Horsley and Schäfer could not find that there was any change even in the mental condition. The function of this part of the brain is, therefore, not certain, but it is considered by most physiologists to be the seat of the highest mental processes, though the relation which it holds to the rest of the cortex is at present rather obscure.

The cortex of the brain has now been considered from a physiological point of view, and it is seen to consist of a motor, a sensory part, and a third part, which, as far as we know, is neither motor nor sensory, but destruction of which sometimes produces mental changes. A few words must be said about the relation of these objective functions to the subjective condition of the mind, of which the brain is

the organ. It is quite impossible to imagine any subjective condition or state of consciousness apart from the brain, and there is no reason to doubt that throughout the whole nervous system the same action takes place from the simplest reflex act to the highest and most complex cortical process, but why some actions like the latter should be attended by consciousness and others not, it is very difficult to explain. The theory of reflex action was first applied to explain cerebral processes by Laycock in 1839-44, since which time it has very generally been accepted; he considered that the objective and subjective conditions were correlated; but that neither could be expressed in terms of the other; it has also been expressed by Hughlings Jackson, in the terms, that mental operations are simply the subjective accompaniment of sensori-motor processes. The incentives to volition are sensations received from without through the organs of sense, or the revived impressions of these sensations which have been received at some previous time; for it is considered that the sensory centres are not only the recipients for present impressions, but that these are stored up here for future use and reference, and as Bain has expressed it, "the renewed feeling occupies the very same parts, and in the same manner, as the original feeling."

We have, therefore, in the cortex areas for the representation of sensation and motion, in which not only the present impressions are received and movements are directed, but also past impressions are stored up and movements are registered, so that the latter can be thrown into action by the stimuli of impressions in the sensory areas, either present or revived, and thus this connection between the sensory and motor constitutes volitional movements. According, however, to Dr. Hughlings Jackson, this sensori-motor apparatus of the cortex is re-represented in centres, which are higher in the scale than the physiological sensory and motor areas which have been shown to exist in the cortex. If this theory is correct, it is possible that these highest centres are situated in the præ-frontal non-excitable region, where they have the power of controlling and concentrating consciousness in a definite direction, and of deciding between two courses, which is the more advantageous to take.

Having now considered the cortex, it will be advisable to say a few words about the functions of the interior of the brain.

2. **Internal Capsule.**—Between the grey cortex and the crus cerebri there is a fan-shaped collection of white fibres, the

corona radiata, of which the upper part as far as the basal ganglia is the centrum ovale, while the part between the ganglia is the internal capsule. Of the former little is known for certain, except that it has probably functions similar to that of the cortex with which it is connected. The internal capsule was first examined electrically by Franck and Pitres, and more recently by Mr. Horsley and the writer,* who found by dividing the area of the horizontal section of the capsule into squares of one millimetre, and stimulating each square, that the following results were obtained. At the highest levels next to the centrum ovale the capsule was excitable throughout, but on descending, the excitability of both the anterior and posterior ends of the capsule diminished. On taking the average of eight different levels, and the length of the horizontal section of the capsule as 100, the first movement begins at $\frac{4.2}{100}$ or nearly $\frac{2}{5}$ from the anterior end, and the most posterior movement at $\frac{8.0}{100}$ or $\frac{4}{5}$ from the anterior end, the fibres in front and behind these limits being inexcitable. The order of representation of movements of and to the opposite side is from before back:—eyes open and turn, mouth opens, head and eyes turn together, head turns, tongue, angle of mouth; shoulder, elbow, wrist, fingers, thumb; trunk; hip, ankle, knee, hallux, toes. The non-excitable fibres in front are probably from the non-excitable frontal cortex, the excitable fibres are continuous with the excitable cortex, while the posterior non-excitable fibres are connected with the cortex representing sensation and the special senses; it is lesions of the last-named part which give rise to hemi-anæsthesia and affection of the special senses on the opposite half of the body.

3. The **Basal Ganglia** were formerly considered to be the chief motor and sensory ganglia of the brain. The corpus striatum with its nuclei caudatus and lenticularis being the motor, and the optic thalamus the sensory. Ferrier obtained movements by stimulating the uncut surface of the corpus striatum, but it should be remarked that Franck and Pitres, and Mr. Horsley and the author failed to get any movements from either the uncut or the cut surface of this ganglia; at present therefore its functions are not definitely ascertained. According to Hale White irritation of the corpus striatum causes pyrexia.

Of the functions of the optic thalamus very little is known except its relation to the optic tract, but loss of sensation, which

* "Phil. Trans. Roy. Soc. 1890."

has been observed in lesions about this body, is more probably caused by implication of the hinder part of the internal capsule than of the thalamus itself.

4. **Cerebellum.** — According to the early experiments of Flourens the cerebellum is the great centre for co-ordinating the voluntary movements for maintaining equilibrium, and lesions of this part produce inco-ordination of these movements. Dogs deprived of the cerebellum are unable to walk or stand, but can swim (Luciani). Lesions of the anterior part of the middle lobe cause animals to fall forwards, and lesions of the posterior part to fall backwards. Injury or division of the lateral lobe or the middle peduncle causes rotation of the animal from right to left when the left peduncle is divided. Electric stimulation of various parts of the cerebellar cortex produce movements of the eyes (Ferrier). In man the chief characteristic of cerebellar lesions is a peculiar reeling gait, like that of a drunken man, with a tendency to fall towards the affected side, but according to Nothnagel and Gowers, this does not occur unless the middle lobe be involved. Lesions of the cerebellum alone do not cause paralysis. In cases of atrophy of one cerebral hemisphere the opposite lobe of the cerebellum is also atrophied. In connection with tumours of the cerebellum, tonic fits have been observed with opisthotonos (Hughlings Jackson), but it is doubtful whether these are caused by the cerebellum itself or by pressure on the medulla and pons.

5. **Corpora Quadrigemina** are probably centres of co-ordination between retinal impressions and motor reactions of considerable complexity concerned with equilibration (Ferrier). The anterior tubercles or nates are certainly connected with the optic tract so that enucleation of one eye is followed by atrophy of the superficial grey layer and superficial fibres of the opposite anterior tubercle. In monkeys destruction of the anterior tubercles produces blindness and loss of equilibration, while stimulation causes dilatation of pupils and movements of the eyes, together with movements of other parts of the body (Ferrier). There seems no doubt that these bodies are in connection with the nuclei of the third nerve beneath them, but what their exact functions are, it is at present difficult to say with certainty.

In man they are sometimes the seat of tumours, which, however, by pressure on the cerebellum and neighbouring parts prevent any very exact indication that these bodies are the parts involved.

C. E. BEEVOR.

BRAIN, SPECIFIC GRAVITY OF.—

The specific gravity of the brain in health and in cases of mental disease was first more extensively examined by Andral.* In England, Dr. Bucknill,† when physician to the Devon County Asylum, was the first to institute a series of observations on the specific gravity of the brain, in order to ascertain what he termed "the relative atrophy" of the organ in mental diseases, while in another series he endeavoured to fix the amount of "positive atrophy" on the same subjects. This research comprised thirty cases. An account of a second series, also of thirty cases, this author published ‡ in the same year. The method which he employed consisted in immersing the parts of the brain to be investigated in solutions of sulphate of magnesia of varying specific gravity. When the pieces of brain immersed neither sunk nor rose, their specific gravity was judged to be equal to that of the solution. The specific gravity of the solution was ascertained with the hydrometer. The first series, in which some acute cases were included, gave for the cerebrum (min. 1.036, max. 1.052) mean, 1.041; for the cerebellum (min. 1.037, max. 1.053), mean, 1.042. He did not examine white and grey tissue separately. The second series treated of chronic cases only (dementia, imbecility, idiocy, chronic mania, melancholy, epilepsy, general paralysis). In these the sp. gr. of the cerebrum was (min. 1.036, max. 1.046), mean, 1.0409; that of the cerebellum (min. 1.039, max. 1.046), mean, 1.043. In both series, therefore, the specific gravity of the cerebellum was found to be somewhat higher than that of the cerebrum.

Shortly afterwards Dr. Aitken,§ of Glasgow, examined the specific gravity of the cerebrum, cerebellum and central ganglia in eight cases, including one of chorea. In the latter the specific gravity of the united corpus callosum and thalamus opticus was, as regards the right half, 1.025, as regards the left, 1.031. In other cases he compared the specific gravity of the large ganglia of both sides, not only with each other, but also with those of the cerebrum and cerebellum. He employed the same method as that which Bucknill had used. He also found the specific gravity of the cerebellum exceeding that of the cerebrum.

* Ex Schlossberger, "Chemie der Gewebe," 1856, vol. ii, p. 67.

† Devon County Asylum Report for 1852: "Manual of Psychological Medicine," by Bucknill and Tuke, 1858.

‡ *Lancet*, Dec. 25, 1852, p. 588.

§ *Glasgow Med. Journ.*, No. 1, 1853.

Sankey* examined the grey and white tissue separately in the brain of seventy persons who had died in the London Fever Hospital. He found the sp. gr. of the grey tissue of the gyri (min. 1.028, max. 1.046), mean, 1.0346; that of the white tissue (min. 1.032, max. 1.048), mean, 1.0412. The specific gravity of the white tissue was equal in both sexes; the grey tissue was very slightly heavier specifically in men than in women. The influence of age was manifested by the fact that the grey tissue attained its maximum density, 1.037, in males during the ages from fifteen to thirty; in females during the ages from twenty to thirty; in individuals of both sexes below the age of fifteen the specific gravity of the grey tissue was below the average; it also decreased in old age, not rarely considerably below the maximum at twenty to thirty. The specific gravity of the white tissue increased in men regularly up to the fiftieth year, fell after that a little, and rose again between sixty and seventy; but the differences were extremely small, due apparently either to age or to sex. If the errors of the method, to be discussed below, be taken into consideration, it is difficult to attribute to these differences any particular significance. No experiments on the brain of the foetus or new-born children were communicated. The period which elapsed between the event of death and the performance of the post-mortem examination was found to influence the specific gravity, particularly of the grey matter, in a not inconsiderable degree. In cases in which the post-mortem examination was made eight hours after death, the mean sp. gr. of the grey tissue was 1.039; but in cases in which sixty-eight hours after death had elapsed the mean sp. gr. was only 1.033; it had, therefore, become considerably lighter, probably by imbibition. The white tissue, on the other hand, had in all these experiments not undergone any noticeable alteration in its specific gravity. In 1854 Dr. Skae† published a paper "On the Weight and Specific Gravity of the Brain in the Insane," which contains the result of the investigation of the brain of sixty-two individuals who had died in the Royal Edinburgh Asylum. By comparing his results with those of Sankey in a table, he found that the specific gravity of the grey as well as the white tissue in the insane was almost invariably higher than that of persons not psychically affected. He found

for the grey tissue (min. 1.030, max. 1.049), mean, 1.039; for the white (min. 1.034, max. 1.053), mean, 1.0424. He tested the cerebellum of twenty-seven insane and some psychically unaffected persons, and found that of the former to be considerably higher than the specific gravity of the cerebrum.

In a paper entitled "The Pathology of Insanity" Dr. Bucknill* communicated sixty-three further investigations of the brains of insane persons, in which the specific gravity of the grey tissue and white tissue was separately examined. The grey he found min. 1.030, max. 1.048, mean 1.037; the white, min. 1.033, max. 1.046, mean 1.039. The specific gravity of the cerebellum, grey and white substance combined, he found to be, min. 1.030, max. 1.049, with mean 1.040. It was not stated whether the entire organ, or only part of it, as in his former experiments, was examined.

Dr. Peacock† communicated a limited number of observations on the specific gravity of the brain as a whole, of the cerebrum, cerebellum, and of the pons and medulla oblongata together. He weighed the parts first in air, afterwards in water, and calculated the specific gravity from the difference. It was not stated whether or not pia mater and arachnoid were removed before the specific gravity of the entire brain was ascertained. To this method apply the objections which will be related lower down as resulting from new experiments, which show that water rapidly alters the specific gravity of brain tissue. Peacock found in twelve persons, who had not been psychically affected, the specific gravity of the whole brain to be 1.036, that of the cerebrum 1.0349, that of the cerebellum 1.040.

These researches were resumed in Drs. Bucknill and Tuke's Manual.‡

Of general results the following are given:—The specific gravity was higher when life had terminated in coma or asphyxia, than when it had ended in syncope or asthenia (*Lancet*, 1852). In the 1855 series the lowest specific gravities were generally connected with a watery or oedematous condition of the brain, which led the investigators to adopt the term "relative atrophy" in contradistinction to that of "positive atrophy," a condition in which the organ has actually shrunk. The two conditions may co-

* *Brit. and For. Med. Chir. Rev.*, Jan. 1853, p. 240 (Abstr. *Schmidt's Jahrb.*, 1853, vol. lxxviii, p. 447 et seq.).

† *Edin. Monthly Journ. Med. Sci.*, Oct. 1854, p. 289.

* *Brit. and For. Med. Chir. Rev.*, Jan. 1855, p. 207.

† *Trans. Pathol. Soc.*, vol. xii., 1860-1, p. 27.

‡ *Psycholog. Medicine*, 4th edit., 1879, pp. 524, 588.

exist, in which case one portion of the fluid, that which makes the brain specifically light, goes to make up for interstitial atrophy; while, on the other hand, the brain shrinks from its bony case, and the space is filled up with serum. In the same work it is also concluded that a low specific gravity does not necessarily indicate a diminution of cohesion or the commencement of softening (*ramollissement*), although it points in that direction. A brain may be surmised to acquire a low specific gravity from an *increased quantity of fat globules* in its tissue, while retaining its normal consistence. It is stated, however, that fat tends to accumulate only in softened brains, so that possibly this source of error (namely, accumulation of fat without softening) may not exist. It is, nevertheless, as most appropriately observed, a point of the utmost importance to determine how much of specific gravity in brain tissue is to be attributed to the effusion of serum (or the imbibition of mere water), and how much to the accumulation of fatty matter. It should be stated that this manual approached the question analytically. In the last case of the table given the sp. gr. of the cerebrum, generally, was 1.041, while that of the softened part was 1.035, and on examination this pultaceous substance was found pervaded with an immense quantity of *fatty matter*. This latter was extracted by ether, and isolated by evaporation of the ether. It is not stated whether it consisted of neutral fats, or fatty acids, or a mixture of both.

Now, it might be agreed that in a case of softening, when the structure of the brain is entirely broken down, and the very chemical educts are decomposed into simple nuclei or radicles, the term of "specific gravity of the brain" is no longer applicable. But in incipient or doubtful cases, or in cases of diffuse softening, where small foci are spread over large bulks of tissue, the formulation of the question in this way offers practical advantages, which cause us to retain it. It would have to be retained in cases in which the fat was deposited without disintegration of the tissue. Such cases have been diagnosed microscopically, but would require for chemical verification very complicated analytical proceedings, for the following reasons:—

The *principal change in the case of softening* consists in the breaking up of the phosphatides into their proximate chemical constituents. These are, for example, in the case of *lecithin*, *oleic*, and *margaric* (or *palmitic*) acid, *glycerophosphoric acid*, and *neurin*. Now, the two last bodies are soluble in water and diffu-

sible, whereas the fatty acids are not soluble and not diffusible. The former will, therefore, leave the diseased foci more or less quickly, according to the swiftness or otherwise of diffusion in its surroundings, while the fatty acids will remain, and eventually be obtained in the ether extract. Both fatty acid and glycerophosphoric acid have been extracted from softened brain matter, and the theory just given rests, therefore, upon analytical evidence, and is not in the least speculative.

While in *softening of the brain* the fatty matters (and they are probably of many kinds, even in the smallest focus) remain as *fatty acids*, in the change which microscopically is called *fatty degeneration* the fatty matters have never yet been supposed or proved to be present in any other form than that of *neutral fats*. We have, therefore, here a broad distinction, which we must maintain, until it is modified, if it can be, by the most cogent contrary evidence.

Mere *fatty degenerations* by deposition of fat would not be demonstrated by ether extraction, as the product would be mixed with the phosphatides soluble in ether. These would not become soluble except after complete drying of the tissue; while, on the contrary, from the product of softening of the brain, at least from all that portion in which phosphatides had ceased to be present, ether would extract the fatty acids directly without previous drying. For the phosphatides in their water-swelled hydrated condition refuse contact with ether, and are in that state insoluble in ether, even when in the dry anhydrous state they are entirely and easily soluble in ether. In that water-swelled condition they enclose and prevent the ether from having excess to *other matters* easily soluble in ether by themselves, such as *fats* and *cholesterine*. For these reasons the mere application of ether to brain tissue can afford us no information on the question of fatty degeneration, although its application to products of true softening may be of the utmost value.

According to "Bucknill and Tuke" the conditions which favour high specific gravity are *congestion* and *induration*; those which favour a low one are *oedema* and *fatty degeneration*.

A watery or oedematous condition of the brain is frequently met with in *dementia* and *chronic insanity* generally, and in each case the specific gravity is low.

The specific gravity is also low in cases of *softening of circumscribed portions*, as described in the foregoing.

It is also low in cases which have not yet found any other hypothesis for their explanation than this that they are due to an *accumulation of diffused but unrecognisable fat*. Such fat is supposed to be represented by the finely amorphous granular matter diffused in the stroma, or contained in the cells and tubes.

It has been supposed that morbid degeneration of the brain substance, like that of muscular tissue, takes place by the running together of the organic elements into forms of *carbohydrate*; we believe the assertion to contain an element of truth in it.

Amyloid degeneration of the medulla spinalis is the result of a disease in which a carbohydrate is set free in a peculiar form. This must, of course, greatly influence the specific gravity, increasing it, as it is actually found to do. Therefore all diseased conditions affecting the *carbohydrate compounds*, or *cerebrosides*, in such a manner as to lead to their sequestration, must be followed by an increase of the specific gravity. Inversely, if the *cerebrosides* are decomposed, as some of them are, in *cerebral glycosuria*, the fatty acids, particularly neurostearic acid, remain deposited, as in true softening, and analytically accessible to ether (supposing the case to terminate fatally); while the nitrogenised product of decomposition, *sphingosin*, will diffuse much later than the *cerebrose* (cerebro-galactose), and in this case the specific gravity of the affected parts must be considerably depressed.

Sankey's researches on the brain of sick persons showed that all kinds of illness diminished the specific gravity of the grey matter, it being the lower, the longer the illness leading to death had lasted. But a high specific gravity was always found in those pathological conditions, which are associated with or consequent upon *hyperæmia* of the brain; inversely the lowest specific gravity* was always associated with *anæmic conditions* of the brain. The total number of healthy and diseased brains examined by Sankey was 77.

An extensive series of observations on the specific gravity of different parts of the human brain was made about 1865 by Dr. H. Charlton Bastian, then assistant medical officer at the State Asylum, Broadmoor. He used a modification of the method first introduced by Dr. Sankey, which was the following. About sixteen high glasses, corresponding to about every second one of even numbers from 1.024 to 1.054 of the ordinary hydrometric scale are filled with solution of sulphate of mag-

nesia of gradually rising density. In order to make sure that the initial density of each solution remained unchanged two little balls, such as were formerly used for the purpose by manufacturers of gravimeters, and are still in use by distillers, were placed in each solution; of these balls the one must have a specific gravity so as just to float, while the other must just sink in the liquid, and be therefore heavier than the floating one. Every alteration in the density of the solution is at once indicated by a change in the position of the balls. When the solutions were disposed in this manner, the piece of brain substance, the specific gravity of which had to be ascertained, was brought near the surface of one of the solutions, and quickly immersed in it. If it remained in the position to which it was pushed, it had the specific gravity of the solution; if it rose it had to be placed into a lighter, if it sank into a heavier solution, and so on until it remained suspended in its place in the solution of equal specific gravity with itself. Air bubbles had of course to be removed both from the solutions and from the pieces of cerebral substance.

Bastian's solutions were made with sulphate of magnesia because these seemed to have the slowest effect upon the brain-tissue in altering its specific gravity; nevertheless, each observation had to be taken at once, as after somewhat protracted immersion pieces of brain would float in a solution in which they previously sank. Skae and Sankey used solution of common salt, others solution of sugar. When the solutions are made, or subsequently corrected by additions, the column of the liquids must be carefully mixed by stirring.

The Specific Gravity of the Grey Tissue in Physically Healthy Persons was found by Bastian to be not the same in all Gyri, and was on the average higher on the left than the right side. At the same time it must be admitted, that in view of the wide distance between the maxima and minima, the differences between the specific gravity of the single parts on each side as expressed by the means are very small indeed.

In eleven deranged persons Bastian found the sp. gr. of the parietal gyri to be in the mean 1.0325 (min. 1.029, max. 1.037), thus confirming the data of Skae and Bucknill, according to which the specific gravity of the grey matter of psychically deranged persons is higher than that of psychically healthy persons. Nevertheless, while Sankey found 1.0346 for the parietal gyri of physically healthy persons, Bastian obtained only 1.030;

* *Journ. Ment. Sci.*, Jun. 1866, No. 56.

and while Skae obtained for deranged persons, a sp. gr. of 1.0391, Bucknill of 1.037, Bastian obtained only 1.0325. Bastian seeks the explanation of these great differences in the method of ablation of the gyri, but we are constrained to leave it an open question.

As regards the *white tissue*, the results of the different observers agree much better. Thus, for psychically unaffected persons Sankey found a mean sp. gr. of 1.0412 (min. 1.032, max. 1.048); Bastian, however, 1.0404 (min. 1.031 max. 1.043). For psychically deranged persons Bucknill found mean 1.039 (min. 1.033, max. 1.076; Skae 1.0424 (min. 1.034, max. 1.053), and Bastian 1.0405 (min. 1.026, max. 1.042). The average specific gravity of white tissue in both categories of cases is therefore nearly identical. Very low numbers in Bastian's observations indicated white softening; only when the sp. gr. sank below 1.035, could this softening be observed with the unaided eye.

Bastian has examined the specific gravity of a number of parts of the brain, fornix, corpora striata, thalami optici, cerebellum, pons Varolii, medulla oblongata, and has obtained some interesting results respecting which we must refer to the original.

The foregoing observations, in which salt solutions were employed, are evidently liable to errors similar to those occurring when pure water is employed. By the enormous amplitude of variation between maxima and minima they show that they are equally unreliable, as will become still more evident from the following data.

On the Methods of Ascertaining the Specific Gravity of the Brain, and its several Parts and Tissues.—1. By Immersion in Watery Liquids.*—The entire brain of the human subject seems to possess a specific gravity varying between 1.037 and 1.038. The observations upon which these averages were based were made, probably without exception, with the aid of, and by immersion of the brain substance in water, or in solution of salt. Now as the specific gravity of brain substance no doubt rapidly alters when it is in contact with water or salt solutions, such observations as the foregoing would be affected with an error, the nature and amount of which would be variable and unascertainable. In its application to an entire hemisphere, or an entire cerebellum, the method would probably be affected by only a very small error, particularly if the brain tissue were not cut into, and pre-

sented to the water or salt solution the minimum of surface, preferably such as naturally limits its shape. Experiments on such large objects, hemispheres or cerebellum, present no doubt some difficulties in the process of accurate weighing, which have sometimes been overcome by measuring the displaced water, and thus obtaining the figure representing loss of weight in water. The following observations were made with a balance carrying one kilogram in each pan, and answering to a milligram; but with the load of little more than half a kilogram in each pan, it answered to two-tenths of a milligram. The apparatus was therefore much more accurate than the material subjected to experiment was stable. The weighings were accomplished in the shortest possible time.

Quantation of the Absolute and Specific Gravities of a Human Brain, and of several Parts.

Division of the Brain.	Absolute Weight in Air.	Weight in Water.	Loss of Weight in Water.	Specific Gravity.
1. Right hemisphere	589.035	20.820	568.215	1.037
2. Left hemisphere	595.823	21.600	574.223	1.037
3. Cerebellum	135.172	5.030	130.142	1.038
4. Mesencephalon	33.950	1.250	32.700	1.038
5. Sclerotic part	3.630	0.150	3.480	1.043
Entire brain	1357.610	48.850	1308.760	1.0373

On the Method of Quantation of the Specific Gravity of White Tissues and Grey Tissues of the Human Brain.—The specific gravities were ascertained by suspen-

* Cf. Thudichum, "Chem. Constit. of the Brain," p. 236 *et seq.*

sion of the parts in water, &c. The figures indicate grams at 16° C.:

White Tissue.

Weight in Air.	Weight in Water.	Sp. Gr.
0.4870 ...	0.0258 ...	1.033
0.8650 ...	0.0400 ...	1.048
1.0746 ...	0.0977 ...	1.046
0.6859 ...	0.0310 ...	1.044
1.0479 ...	0.0394 ...	1.039
3.7845 ...	0.1319 ...	1.036
9.7000 ...	0.2850 ...	1.030
9.5362 ...	0.2740 ...	1.030

Grey Tissue.

Weight in Air.	Weight in Water.	Sp. Gr.
0.6628 ...	0.0243 ...	1.038
14.4592 ...	0.3810 ...	1.027
11.5741 ...	0.2865 ...	1.026

When the foregoing data were arranged in the order of decreasing specific gravities it was at once found that the columns denoting weights in air observed an inverse arithmetical order. Only two figures out of eleven do not occupy the exact places which they would take if the order of increase in the first column were the inverse of that in the third.

It therefore appears, what has also been confirmed by many other experiments, that, in these quantations by immersion in water, *the specific gravity of white tissue of the brain is found the higher, the smaller is the quantity of brain-tissue employed in the experiment.* Now as the pieces of tissue which can be employed in the experiment are limited in size by the arrangement of the relative tissues in the brain, it is clear that the specific gravity quantation of brain substance in water can only be approximately correct. The variation, no doubt, depends upon a reaction between the surface of the piece of tissue immersed and the water which surrounds it. The water takes up some soluble albumen and some salts, and the piece of brain-tissue immersed assumes a glazed appearance. But what the exact nature of the changes may be remains for future research to explain. It is, at all events, evident that the greater is the surface of the piece under observation, as compared to its volume, the greater will probably be the source of error; the error will further be influenced by the length of time during which the piece of tissue is immersed, and consequently variations will arise, even when pieces of equal size are examined, from the interference of the accident of quicker or slower weighing. It is further doubtful whether white and grey tissue will be equally influenced by water in the same tissue, even when their bulks are

equal. It is further not proved that either the grey or the white tissue is so homogeneous in any part of the brain as is assumed for the purpose of comparison. It is therefore clear that specific gravity estimates of brain-tissue in water have only an approximate, and no absolute mathematical value. Such estimates must therefore hereafter be made with the aid of fluids of well-known specific gravity which, while they make contact with the brain-tissue, do not provoke in it any chemical or physical change.

Synopsis and Averages of the Specific Gravities observed in Three Series of Observations, without Reference to Quantities on which they were observed.

I. *White Tissue.*

(1) 1.054	(5) 1.044	(9) 1.036
(2) 1.053	(6) 1.051	(10) 1.032
(3) 1.048	(7) 1.039	(11) 1.030
(4) 1.046	(8) 1.037	

Mean sp. gr. of white tissue = 1.041.

II. *Grey Tissue.*

(1) 1.039	(2) 1.038	(3) 1.027	(4) 1.025
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Mean sp. gr. of grey tissue = 1.032.

Sp. gr. of entire brain (four parts) = 1.037.

The foregoing figures do not differ much from those accepted by other observers. The specific gravity of white tissue is the same as that commonly allowed in physiological treatises, namely, 1.041, while the sp. gr. of grey tissue is 1.032, instead of that commonly allowed, namely, 1.034. But when it is considered that what must theoretically be assumed to be the best observations of the specific gravity of white tissue, namely, those on the largest volume, do only give 1.030 as the value, while grey tissue, under the same limitation, gives 1.027, it is impossible to avoid the suspicion, that all specific gravity estimates hitherto made, including the foregoing, are vitiated by a fundamental fault of method, or by several faults, as above indicated. These probable faults have, for the first time, been observed in the course of the researches here related, and there has been no time for instituting new researches.

On these grounds I have not yet applied the method, which I first communicated in 1876, for estimating the proportion between white and grey tissue in the brain by a calculation from the four factors, absolute weight of the brain, specific gravity of the entire brain, and specific gravity of each white and grey tissue.*

* The method and formulae for its use can be seen in "Chem. Constitut. of the Brain," p. 240 *et seq.*

Relation of the Specific Gravities of White and Grey Tissue to the Absolute Amount of Water and Solid Matter contained in them.

Grey tissue (mean)

Lost at 95° C. % of water 85.270
 Contained solids % 14.730

White tissue (mean)

Lost at 95° C. % of water 70.230
 Contained solids % 29.770

We see that white tissue contains just double the amount of solids which the grey tissue exhibits. Now as all ingredients of both tissues, each taken by itself, have a specific gravity which is higher than that of water, so that when placed in water they sink in it; and as the specific gravity of brain tissue is a function of the specific gravities of its ingredients, the prevailing ingredient will govern the specific gravity. And thus we may say, that as the specific gravities of the solids are probably equal, the specific gravities of the tissues are the result of the water which they contain. The deposit of fat in the brain has never been observed in health; it is rare in disease, and if the cases of softening in which fatty acids (not neutral fats) are liberated, are left out of consideration, may also be said to have never been observed.

In case, therefore, it were found that the specific gravity estimation methods could not be improved so as to satisfy all demands for accuracy, they can be, at least, con-

trolled by drying experiments, and these latter are, therefore, of a double use; for if the amount of water in white and grey tissue, on the one hand, and in the entire brain, on the other, and the specific gravities of the dry residue of grey tissue on the one, and of white tissue on the other, be known, we can calculate from these data the relative weights of white and grey tissue as well as their specific gravity.

J. L. W. THUDICHUM.

BRAIN, WEIGHT OF, in the Insane.

—Speaking generally, the brain weighs less in the insane than in the sane, though this is neither necessarily nor universally the case. Dr. Thurnam's researches at the York Retreat and elsewhere led him to this conclusion, and Sir James Crichton-Browne supports this view: "It may be taken as proved that insanity on the average of a considerable number of cases reduces brain weight." On the other hand, Parchappe, Boyd, and Skae held that the average weight of the brain is increased in persons dying insane.

Our own observations, made upon the brains of twelve hundred lunatics, and published in the *West Riding Asylum Medical Reports*, vol. vi. (1876), show the average brain weight of insane males to be 1356 grammes, of insane females 1230.4 grammes, and the mean of the sexes 1293.2 grammes.

With the idea of classifying brains, Dr. Thurnam has drawn out the following table:—

Microcephalous Brains.	Brains of Medium Size.	Megalocephalous Brains.
(a) Incipient Microcephaly Men: 1130—1062 grammes Women: 990—920 grammes	Men: 1130—1490 grms.	(a) Incipient Megalocephaly Men: 1490—1560 grammes Women: 1345—1417 grammes
(b) Decided Microcephaly Men: Under 1062 grammes Women: Under 920 grammes	Women: 990—1345 grms.	(b) Decided Megalocephaly Men— 1560 grms. and upwards Women— 1417 grms. and upwards

On comparing this table with the West Riding averages, it is found that both male and female brains in these latter come high up under the heading of "Brains of Medium Size;" forty-five of them come under the heading of "Decided Megalocephaly," four of these last weighing 1700 grammes and upwards.

The heaviest male brain weighed 1729.3 grammes; the heaviest female brain, 1587 grammes. The extreme brain

difference=761 grammes in males; the extreme brain difference=764 grammes in females.

An immense brain weight is recorded by Dr. Levinge, in the case of an imbecile at the Hants County Asylum. This brain weighed no less than 1998 grammes, and was reported to be of normal consistence. A remarkably small brain is recorded by Dr. Fletcher Beach in the *Transactions of the International Medical Congress* (Lon-

don, 1881). The case was that of a female congenital idiot, twelve years of age, whose entire brain weighed only 198.4 grammes (=7 ounces).

For purposes of comparison, it may be interesting to note that the average *sane* brain, as determined by Dr. T. B. Peacock (from a number of observations made by Sir William Hamilton, Dr. Sims, Dr. Clendinning, and Dr. Reid), ranges between 1303 and 1425 grammes for males, and between 1170 and 1276 grammes for females. Dr. Robert Boyd makes the sane average 85 grammes less than this in each sex.

The weight of the brain in the insane is influenced by (1) sex, (2) age, (3) disease.

(1) **Sex.**—The male brain is heavier than the female, the difference in weight averaging 125.6 grammes. Dr. Skae gives it as 128 grammes, and Dr. Thurnam as 157 grammes.

The average excess in weight of the male over the female brain in lunatics, at different ages, is well shown in the following table, drawn up by Sir James Crichton-Browne, and published in *Brain*, part iv. :—

Excess of Male Brain in Grammes.

Ages.	Sir J. Crichton-Browne's Cases.	Dr. Clapham's Cases.	Dr. Boyd's Cases.
Under 20 . . .	231.3	134.4	
20—30 . . .	169.9	108.0	102.6
30—40 . . .	111.2	99.3	80.8
40—50 . . .	127.1	133.1	97.2
50—60 . . .	120.3	148.1	127.5
60—70 . . .	154.5	124.9	145.1
70 and upwards .	176.5	145.8	141.1
All ages . . .	136.2	125.6	109.5

(2) **Age.**—The weight of the insane brain varies at different ages.

*Average Brain Weight at different ages in 1200 Cases,
701 Male, 499 Female.*

No.	Age.	Male.	Female.	Mean of Sexes.
36	Under 20 years . . .	1313.4	1179.0	1246.2
106	20—30 " . . .	1365.0	1257.0	1311.0
265	30—40 " . . .	1341.1	1241.7	1291.4
284	40—50 " . . .	1360.5	1237.3	1298.9
224	50—60 " . . .	1372.3	1224.1	1298.2
178	60—70 " . . .	1352.4	1227.5	1289.9
85	70 and upwards . . .	1352.9	1207.1	1230.0
1200	All ages . . .	1356.0	1230.4	1293.2

The highest average *male brain* was reached in the decade fifty to sixty years, and the lowest average in those under twenty years of age.

The highest average *female brain* was reached in the decade twenty to thirty years, and the lowest average in those under twenty years.

After sixty years of age, the insane brain rapidly declines in weight in both men and women, this no doubt being greatly due to brain wasting, with concomitant increase in serosity.

(3) **Disease.**—The weight of the brain varies with the forms of insanity.

Average Brain Weight in Different Forms of Insanity.

No.	Form of Insanity.	Male.	Female.	Mean of Sexes.
19	Idiocy . . .	1200.7	1077.7	1139.2
11	Imbecility . . .	1331.2	1246.6	1288.9
254	Dementia simple) . . .	1356.8	1234.1	1295.4
209	" (senile) . . .	1348.5	1204.9	1276.7
59	" (organic) . . .	1347.7	1198.0	1272.8
235	Acute insanity . . .	1441.6	1278.0	1359.8
243	General paralysis . . .	1302.0	1134.3	1218.1
117	Epilepsy . . .	1391.6	1217.6	1304.6
112	Chronic mania . . .	1392.9	1268.2	1330.5
59	Brain wasting . . .	1251.2	1195.2	1223.2

The above shows that the highest average brain in both males and females is found in the acute forms of insanity, whilst the lowest average is, as might be expected, found in idiocy.

Epileptic insanity, in both sexes, has a high average brain weight; chronic mania one still higher.

In imbecility, the male average is below the general male average, whilst that for females is higher than the general average for that sex.

In simple dementia, both males and females have a larger brain average than the general average for their sex respectively.

Senile and organic dementia, general paralysis, and cases of brain wasting, have, in both males and females, an average less than the general average for the sex in the insane.

Sir James Crichton-Browne has divided all his cases into three classes, and gives the average for both sexes in these classes as follows:—

States of mental weakness	1263.0 grammes
" " exaltation	1344.1 "
" " depression	1331.2 "

thus, the brain average is above the

general average in states of mental exaltation and depression, and below the average weight in states of mental weakness.

Component Parts of the Brain in the Insane.—(1) *Hemispheres.*—Sir James Crichton-Browne, from an examination of four hundred cases (*Brain*, part iv.), says: "As regards the relative weight of the two hemispheres, it will be noticed that in both sexes, and in all decades of life from twenty to eighty, the right is heavier than the left one;" and Dr. Clapham's somewhat more extended series serves to confirm this. On the other hand, this is contradicted by Drs. Boyd and Brown-Séguard.

Dr. Clapham's records (four hundred and forty-nine cases) show an average excess in the right hemisphere of 4.2 grammes in the mean of the two sexes—6.5 grammes excess in the male, and 1.8 grammes excess in the female sex. This is further demonstrated in the following table, where the weight of the hemispheres and frontals are both exhibited, together with that of the whole brain, in two hundred and twenty-nine cases, under different conditions as to sex, age, and disease:

	Age.	Hemispheres.		Frontals.		Brain (whole).	Average Percentage of Frontals to Encephalon.
		Right.	Left.	Right.	Left.		
Sex—							
Male	47.2	583.6	577.8	245.5	236.2	1336.3	36.04
Female	49.7	524.0	521.6	218.5	215.0	1206.4	35.93
Both sexes	48.3	557.6	553.2	233.9	226.7	1279.6	35.99
Mean of sexes	48.4	553.8	549.7	232.0	225.6	1271.3	35.99
Age (both sexes)—							
20—30	25.2	565.7	563.5	235.4	225.7	1293.6	35.64
30—40	34.7	555.3	553.0	235.6	225.0	1278.8	36.01
40—50	43.8	554.1	546.6	229.1	222.7	1270.2	35.56
50—60	54.0	553.7	550.9	230.6	229.1	1275.6	36.03
60—70	64.7	568.0	564.2	243.4	236.7	1303.0	36.84
70 and over	73.1	554.6	546.6	226.7	218.3	1260.5	35.30
Unknown		528.1	526.0	227.3	212.5	1222.6	
Disease (both sexes)—							
Idiocy	27.3	498.6	498.6	217.5	202.3	1129.5	37.16
Imbecility	39.2	553.4	536.4	240.4	225.7	1255.8	37.11
Epilepsy	37.0	573.1	571.5	237.1	228.6	1312.9	35.47
General paralysis	41.6	530.4	522.2	214.5	206.3	1223.0	34.40
Mania	42.7	569.6	561.9	247.0	237.5	1298.5	37.31
Dementia (simple)	52.8	559.6	559.1	236.7	231.3	1290.4	36.26
" " (senile)	70.2	544.2	539.2	224.8	216.8	1246.9	35.41
Melancholia	49.0	583.4	575.0	245.6	246.1	1325.6	37.09
Chronic mania	54.2	563.0	559.7	243.3	234.9	1287.8	37.13
Acute forms	37.1	590.3	585.9	250.6	241.9	1352.3	36.41

In all these cases, and under their varying conditions, the right hemisphere is throughout heavier, *on the average*, than the left, with the single exception of idiocy, where they are equal.

(2) *Frontal Lobes*.—The right frontal lobe is also heavier than the left, on the average, in all cases except melancholia, where the left exceeds it by half a gramme. On examining the last column of the foregoing table, it is found that the right and left frontals, weighed together, show a varying average percentage of the whole brain in the seven-

ral divisions. The very high percentage of the frontal lobes in idiocy and imbecility is remarkable, as also between the ages of sixty and seventy. The greatest average difference between the two frontals occurred in idiocy and imbecility, where it was 15.2 grammes and 14.7 grammes respectively in favour of the right side.

The percentage in which the hemispheres and frontals were respectively equal to, or heavier than, each other, in the two hundred and twenty-nine cases, is shown in the next table.

Percentage.

	Hemisphere.			Frontal.		
	Equal.	Right.	Left.	Equal.	Right.	Left.
Sex—						
Male	5.07	66.66	28.26	7.20	74.40	18.40
Female	3.73	60.74	35.51	1.96	61.76	36.27
Both sexes	4.48	64.08	31.42	4.84	68.72	26.43
Age—						
20—30	4.00	68.00	28.00	—	60.86	39.13
30—40	5.96	58.82	35.29	8.33	72.91	18.75
40—50	7.40	66.66	25.92	2.12	68.08	29.78
50—60	—	68.29	31.70	7.50	55.00	37.50
60—70	2.12	59.57	38.29	4.54	75.00	20.45
Over 70	9.52	61.90	28.57	5.26	73.68	21.05
Disease—						
Idiocy	—	66.66	33.33	—	100.00	—
Imbecility	20.00	40.00	40.00	25.00	75.00	—
Epilepsy	—	65.38	34.61	—	64.00	36.00
General paralysis	2.32	67.44	30.23	4.87	65.85	20.26
Mania	4.16	79.16	16.66	4.34	73.91	21.73
Dementia (simple)	3.84	57.69	38.46	5.65	68.11	26.08
" (se nile)	3.73	59.25	37.37	3.84	69.23	26.92
Melancholia	6.66	80.00	13.33	—	66.66	33.33
Chronic mania	9.09	72.72	18.18	9.09	72.72	18.18
Acute forms	7.69	61.53	30.76	—	72.72	27.27

3. The *parietal, temporo-sphenoidal, and occipital lobes, and the cerebellum, pons, and medulla oblongata* were separated and weighed by Sir James Crich-

ton-Browne in sixty cases of both sexes—thirty-one males and twenty-nine females. Their average weights were as follows:

	Parietals.	Temporo-Sphenoidal.	Occipitals.	Cerebellum.	Pons.	Medulla.
	Grammes.	Grammes.	Grammes.	Grammes.	Grammes.	Grammes.
Male	271.8	263.7	138.6	147.2	17.5	6.6
Female	237.4	233.6	123.6	137.2	15.9	6.0
Total	255.1	249.1	131.4	142.4	16.7	6.3

In the twelve hundred West Riding cases, the cerebellum, pons, and medulla, together, had an average weight of 169.7 grammes in all cases: in men, 176.9 grammes, and in women, 159.4 grammes. The ratio of cerebellum, pons, and medulla to encephalon in the twelve hundred cases was as 1 to 7.68: in men, as 1 to 7.66, and in women, as 1 to 7.71.

The cerebellum, pons, and medulla were not only actually, but, as compared with the encephalon, relatively larger in men than in women. Largest male cerebellum, pons, and medulla = 219.3 grammes, with a ratio to encephalon of 1 to 6.13; largest female cerebellum, pons, and medulla = 262.2 grammes, with a ratio to encephalon of 1 to 4.91; smallest male cerebellum, pons, and medulla = 113.1 grammes; smallest female cerebellum, pons, and medulla = 85 grammes. The cerebellum, pons, and medulla bore the highest ratio to the encephalon in those between thirty and forty years of age, and the lowest ratio in those over seventy years of age.

Idiocy shows the highest ratio of cerebellum, pons, and medulla to the encephalon, and epileptic insanity shows the lowest.

CROCHLEY CLAPHAM.

BRAIN and MEMBRANES, ANATOMY of. — Membranes. — The *dura mater* is the firm, tough, inelastic membrane which forms the inner periosteal lining to the bones of the cranial cavity. While it is easily detached from the skull-cap, it is more firmly adherent to the rough surface of the base and especially to the margin of the foramina. It splits into two layers at the foramen magnum. One forms a close investment of the spinal cord, the other a periosteal lining to the vertebrae. It has several reflections inwards, the *falx cerebri* between the two cerebral hemispheres, the *falx cerebelli* between the two cerebellar hemispheres, and the *tentorium cerebelli* between the cerebrum and cerebellum. It sends tubular investments along the cranial nerves. The membrane is rough and fibrous on its outer aspect, and smooth, glistening and bluish-white on its inner. It is composed of closely appressed laminae of fibrous tissue, running in various directions. Its arterial supply is copious, and is derived from the various meningeal arteries. Its capillaries present peculiar lacunar dilatations at the points of intersection. Its lymphatics are in communication with those of the bones of the skull, and the lymph finds exit mostly along the dural sheaths of the cranial nerves. It is highly sensitive, and is supplied by the fifth, tenth and sympa-

thetic nerves. In certain situations its fibrous layers are split into channels for the various venous sinuses. These sinuses have an endothelial lining, and they are destitute of valves. Its inner surface is lined by a layer of tessellated endothelial cells, which was formerly described as the parietal layer of the arachnoid. Between the *dura mater* and arachnoid is a narrow lymph space, the subdural space, from which lymph finds exit along the dural sheaths of the cranial nerves.

The *arachnoid* and *pia mater* (leptomeninges) lie in more immediate relation to the brain. These are usually described as two distinct membranes, but Dr. Batty Tuke regards them as two layers of one membrane. He gives the name *arachnoid* to the outer or arachnoid, and *visceral pia* to the inner layer, which is generally termed the *pia mater*. The arachnoid is separated from the *pia mater* by a considerable interval—the sub-arachnoid space. While the *pia mater* closely invests the cerebral surface, the arachnoid bridges the sulci, and in certain other situations (see *Lymphatic Circulation*) is so widely separated from the former that large sub-arachnoid cisterns are formed. In the spinal canal the two membranes are quite distinct from each other. The outer surface of the arachnoid is covered by a fine tessellated endothelium. Below this is a layer of non-vascular connective tissue, which sends fine trabeculae or threads across the sub-arachnoid space to join the intima or *visceral pia*. These trabeculae are covered by a continuous layer of tessellated endothelium, so that the sub-arachnoid space forms a spongy lymph sac, bathed by cerebro-spinal fluid. At the vertex, near the great longitudinal fissure, the arachnoid forms a series of small, pale, cauliflower-like excrescences—the *Pacchionian granulations*. These have a central connective tissue core, and are covered with endothelium continuous with the general arachnoid lining. Many of them project through the *dura mater* into the superior longitudinal sinuses. They are generally protected from the blood stream by the endothelium of the sinus. Their function has not been definitely ascertained, but the fact that coloured injections into the sub-arachnoid space pass into these granulations, and through their endothelium into the sinus, seems to point to their being channels for the removal of cerebro-spinal fluid. The arachnoid and sub-arachnoid tissue are continued along the cranial nerves to their points of exit.

The *pia mater*, besides following the brain surface closely, sends double folds

of its substance through the great transverse fissure of the cerebrum, and at the sides of the fourth ventricle, to form the choroid plexuses. These duplications are lined externally by a layer of granular cubical cells which secrete the cerebrospinal fluid. Between the layers run the tortuous capillaries of the plexuses. The pia mater is formed of delicate connective tissue, and sends inwards along the arteries and veins a tubular sheath which becomes continuous with their adventitious coats.

Cerebral Cortex.—This varies in thickness from 1.5 mm. in the occipital lobe to 4 mm. at the summit of the præcentral convolution. It is, even to the naked eye, distinctly laminated, with an outer narrow, pale, translucent zone, and two inner grey and yellowish-red zones of nearly equal breadth, on which careful examination may detect two fine white streaks. In the calcarine fissure one of these streaks is very distinct, and is called the band of Vicq d'Azyr. The histological structure is best studied in the fresh state by the method of Lewis, and in hardened sections by the methods of Exner, Golgi and Weigert. Lewis and Golgi's methods are most valuable for the cells, while Exner and Golgi's methods are most suited for demonstration of the fibres. The cells are arranged in five laminae, except in the occipital region, where a sixth layer is interpolated. The thickness of the various laminae, the form of the cells and their arrangement, differ somewhat in different areas, but nowhere is there an abrupt transition from one arrangement to another.

In the *first*, or superficial layer, there is, next the surface, a fine layer of connective tissue; below this is a narrow stratum of fine medullated fibres almost parallel with the surface; and still deeper a fine felt-work of nerve fibres. The non-nervous elements are a few small cells of irregular form.

The *second*, or small pyramidal layer consists of closely aggregated small pyramidal cells; these measure $12\ \mu$ by $8\ \mu$. Their apices point outward, and send a long *apical* process into the outer layer, where its branches enter the felt-work of fine fibres. From the opposite pole a basal process passes inwards, and has been stated to become connected with an axis cylinder. Numerous lateral processes pass into the surrounding neuroglia.

The *third* layer is formed of large pyramidal cells. These are provided with processes which have a direction similar to those of the small pyramids. The basal

process almost certainly enters an axis cylinder. Their size averages $40\ \mu$ by $20\ \mu$. Small pyramids are also present in this layer, but their number diminishes from without inwards.

The *fourth* layer has been called the *ganglion-cell* layer by Lewis on account of the resemblance in form of its cells to the motor cells in the anterior cornua of the spinal cord. Some of these are as small as the pyramidal cells in the second and third layer, but some attain a size twice or three times greater than the large pyramids. Betz, who discovered them, called them "giant pyramids." Lewis regards them as motor cells. They are largest at the summit of the motor area. In the motor area they are arranged in groups or clusters; elsewhere they are single or solitary. In front of and behind the motor area the ganglion-celled layer becomes narrowed, and contains no giant pyramids, and, more especially behind the region in question, there is interpolated, between the third and fourth layers, a narrow layer of small granule cells similar to those found in the posterior cornua and the spinal cord, and for that reason supposed to have sensory functions.

The *fifth* (or, in regions where the granule-celled layer is present, the *sixth*) layer is composed of small fusiform cells arranged in rows at right angles to the surface owing to the course of the axis cylinder processes into the medulla.

The non-nervous elements of the cortex are the blood and lymph vessels, and the *neuroglia*, which latter is a granular substance with numerous finely branching processes (Deiter's cells). (For the supposed function of these cells see *Lymphatic Circulation*, p. 170.)

Blood Supply of the Brain.—In the arterial circulation of the brain there are three facts of paramount importance—namely, the great freedom of communication between the arteries which form the circle of Willis at the base; the independence of the supply of the grey cortex and that of the basal ganglia and white matter of the cerebrum; and the more or less complete absence of anastomosis between the arteries which supply the cerebral cortex.

The two vertebral arteries entering the cranial cavity through the foramen magnum unite at the lower border of the pons Varolii into the basilar artery. The calibre of the basilar is smaller than that of the two vertebrals, and therefore its blood will always be at high pressure, a fact of importance to the nerve centres of the pons and medulla supplied from it. At the upper part of the pons it divides

into the two posterior cerebral arteries, which, near their origin, give off the two posterior communicating arteries. These are usually of small size, and pass forward to join the middle cerebrals almost immediately after the latter leave the internal carotids. These carotids divide into anterior and middle cerebral arteries. The two anterior cerebral arteries are united, above the optic chiasma, by the anterior communicating artery.

The circle of Willis thus completed is formed by the basilar, posterior cerebral, posterior communicating middle cerebral, anterior cerebral, and anterior communicating arteries; and the anastomosis is so free that the circulation can be carried on provided one carotid or one vertebral remains patent.

The cerebral cortex is supplied from the anterior, middle, and posterior cerebral arteries. Their areas of distribution do not, however, correspond to functional areas. The anterior cerebral supplies the inner aspect of the hemisphere as far back as the parieto-occipital fissure, the apex of the ascending frontal, the superior frontal, and the greater part of the middle frontal convolution, as well as the basal surface of the frontal lobe. The middle cerebral supplies the motor area, the angular, and superior temporal convolutions. Its five branches are distributed thus: the first to the inferior frontal convolution; the second to the lower two-thirds of the ascending frontal and the adjacent part of the middle frontal; the third to the ascending parietal and postero-parietal; the fourth to the angular, supra-marginal, and posterior end of the first two temporal convolutions; while the fifth supplies the anterior part of these convolutions. The posterior cerebral supplies all the remains of the cortex, viz., the occipital lobe, cuneus, the third temporal convolution, and the inner aspect of the temporal lobe. According to Duret, these main and subsidiary divisions are true terminal arteries—*i.e.*, they have no arterial anastomoses with each other. Heubner, on the other hand, maintains the existence of such anastomoses; and it is certainly possible to throw thin coloured fluids from one artery into the area of its neighbour; but the practical fact of importance is that, after a block of one artery, the collateral vessels cannot, as a rule, restore the circulation with sufficient rapidity to prevent softening in the area of distribution of the vessel.

The larger branches of these three vessels ramify in the sub-arachnoid space, supported by its fibrous meshwork. Previous to entering the cortex, the vessels

break up, in the pia mater, into smaller branches which penetrate the grey cortex at right angles to the surface, carrying with them an investing funnel-shaped sheath of pia mater. These branches are divided into two sets, which, according to Duret, are quite independent of each other. A short, *cortical* group distributed in the grey cortex, without anastomosing with each other (P), and for the most part terminating in a fine capillary network in intimate relation with the large pyramidal and ganglion-celled layer of nerve cells. A long, *medullary* group penetrates the grey cortex without supplying it, and is distributed in the underlying white matter. These arteries are said not to anastomose with each other or with those which supply the medulla from within. The anastomosis with the latter vessels must, if it exists at all, be very incomplete, for the borderland between them is frequently the seat of foci of softening in old people.

The veins of the cortex pass for the most part into the superior longitudinal veins, into which they enter in a direction contrary to that of the blood current, an arrangement which will prevent too rapid emptying of the cortical veins.

The basal ganglia and white matter of the cerebrum are supplied by small arteries, which come off at right angles from the three cerebral arteries, near their origin. Those from the anterior cerebral artery supply the head of the caudate nucleus: those from the middle cerebral supply the lenticular and caudate nucleus and part of the internal capsule and optic thalamus. One branch, which passes upwards in the outer aspect of the lenticular nucleus, from its proneness to rupture has been called by Charcot the artery of cerebral hæmorrhage. The hinder part of the optic thalamus is nourished by branches from the posterior cerebral.

The venous blood is returned from the interior of the cerebrum by the veins of the choroid plexus, and those of Galen into the straight sinus.

Lymphatic Circulation of the Brain and its Membranes.—The cerebro-spinal fluid is a transparent, pale straw-coloured or colourless, and faintly alkaline liquid. It has a specific gravity of about 1010, and contains about one per cent. of solids, mostly salts similar to those of ordinary lymph. Of the solids only about one-tenth part is proteid matter. This fluid arises partly in the ventricles of the brain and central canal of the spinal cord, and partly from their cortical and medullary substance. Whether there is any difference in the constitution of the fluid from the two sources has not yet been determined. The

fluid in the interior of the brain is secreted by the epithelium of the choroid plexuses which project into the lateral, the third and the fourth ventricles, and possibly from the general epithelial linings of these cavities. Of these sources that from the choroid plexus of the lateral ventricles is by far the most important. This fluid leaves the ventricular system and enters the sub-arachnoid space by the small oval foramen of Magendie in the pia mater forming the roof of the fourth ventricle, and to a slight extent by the small foramina of Mierzejewski at the lateral angles of the ventricle. Closure of these foramina is found to lead to dropsical dilatation of the ventricles.

The sub-arachnoid space is a true serous cavity or lymph sac. The pia mater and arachnoid are connected by bundles of connective tissue, covered by tessellated endothelial cells. The spaces between these bundles are bathed by cerebro-spinal fluid. In certain situations the arachnoid becomes widely separated from the pia mater, and the sub-arachnoid space is dilated into large *cisterns*, as they are called. The most important of these lie on the posterior surface of the medulla oblongata, between it and the cerebellum; under and at the sides of the medulla and pons Varolii; in the interpeduncular space; in the fissure of Sylvius and along the upper surface of corpus callosum. The sub-arachnoid space is continued over the whole cerebral surface, but is not in communication with the sub-dural space.

If a fluid containing colouring matter in solution be injected into the sub-arachnoid space, it is found to pass along the sheath of pia mater which covers the small arteries and veins that penetrate the brain substance. This sheath becomes continuous with the adventitia of the vessels, and the lymphatic channel can be easily traced along the adventitia for a certain distance. (It is to be noted that, in hardened brains, spaces are formed between the brain substance and the pia mater—the epi-cerebral space of His—and between the former and the adventitia of the vessels—the peri-vascular lymph space of His. According to Bevan Lewis these are not true lymph spaces, but are formed by the shrinking of the hardened brain substance from the pia and vessels. Injections into the sub-arachnoid space do not pass into them.) Staining of the adventitia of the vessels with nitrate of silver shows that it is lined on its inner and outer surfaces with endothelial cells. Between the adventitial and the muscular coats of the vessels is a lymph space, the space of Virchow-Robin. The ad-

ventitial sheath gradually disappears as a distinct tubular membrane, but the lymph path follows the space outside the smaller arteries and capillaries. Lewis states that cells representing those of the lymph space of the adventitia can be traced even around the smallest capillaries. The lymph spaces surrounding the capillaries are dilated at intervals into minute saccular ampullæ which surround the nerve cells. These peri-cellular sacs are not mere excavations in the neuroglia, but are lined, though incompletely, by branching endothelial cells, continuous with those in the peri-vascular lymph channels. The nerve cells are supported in their sacs by their processes, which pass through the wall of the sac into the neuroglia beyond.

While this system of peri-cellular sac, and peri-vascular and adventitial lymph channels removes waste products from the nerve cells, Bevan Lewis considers that the intervascular neuroglia is drained by means of the large spider-like branching Deiter's cells (Lewis's lymph connective system). He points out that these cells are more numerous along the vessels, that while, on the one hand, they are connected with the cells of the peri-vascular adventitia by a single long process, on the other they send many fine branching processes into the neuroglia. Their protoplasm is of extreme tenuity, and seems well adapted for the imbibition of fluid from the neuroglia to pass it on to the adventitial lymph space. Whether this be really their function or not, these cells become greatly increased in size in circumstances leading to accumulation of lymph in the neuroglia.

From the sub-arachnoid space the cerebro-spinal fluid is removed by several channels. Much of it passes into the corresponding space round the spinal cord and escapes outwards along the sub-arachnoid sheath of the spinal nerves. The rest finds exit either along the corresponding sheaths of the cranial nerves, or is secreted by the Pacchionian bodies into the superior longitudinal sinus in the dura mater.

The view generally held that the various lymph cisterns act as a water cushion to minimise shock to the brain and to compensate variations in blood pressure, has recently been contested on the ground that the exit channels along the cranial nerves are not sufficiently large to allow of a rapid escape of fluid, but it can be shown in cases of spina bifida that the cerebro-spinal fluid can be readily driven from the spinal canal into the cranial cavity by pressure on the tumour, so that

there is good reason to assume that it may equally readily pass in the reverse direction.

ALEXANDER BRUCE.

BRANDSTIFTUNGS MONOMANIE, BRANDSTIFTUNGS-*LUST* or BRANDSTIFTUNGS-*TRIEB*. (Ger.)
Synonyms for Pyromania.

BREAST, HYSTERICAL. — A condition of the mammary gland in hysterical girls, in which it becomes painful, tender on pressure, and swollen. (See *HYSTERIA*.)

BRIGHT'S DISEASE in relation to INSANITY.—The experience of some alienists has not supported the opinion that Bright's disease frequently occurs among the insane. In the "Manual of Psychological Medicine," the statement was made that the kidneys had been found remarkably free from pathological changes. Griesinger was quoted to the effect that Bright's disease is exceedingly rare as a primary affection, although the slighter forms accompanying the various marasmatic states are common. The contrary experience of Dr. Howden (Montrose Asylum) was recorded, he having found fatty degeneration of the kidneys, cysts, and albuminuria in a considerable number of cases. Dr. Savage observes "that it is not common to meet with albuminuria in acute cases of insanity, and I may say this after examining several hundred specimens of urine of the insane." Again, Dr. Sankey appears to have been struck with the frequency with which kidney disease is found in post-mortem examination, including adhesion of the capsule, atrophy of the cortex, fatty degeneration, waxy disease, and general wasting.

In the *Journal of Mental Science*, July 1874, three cases of Bright's disease, associated with mental disorder, are recorded by Dr. Wilks. They had been ill for long with the usual concomitants of the disorder, and in two of them epilepsy complicated the brain affection. A railway guard, after behaving strangely during the day, had a fit, and was brought to Guy's Hospital violently excited. The urine was loaded with albumen, and he had gout. He recovered in two days from his mental trouble. A female patient in the hospital for Bright's disease had epileptiform fits, and became maniacal. This was followed by lethargy, but she gradually recovered. The third case was that of a woman very cachectic, and the subject of Bright's disease. She also became excited, and was insane for a week. She then quieted down, but eventually died from atrophied kidneys.

Dr. Wilks anticipates the possible sug-

gestion that mania in these patients was due to epilepsy rather than uræmic poisoning, and therefore speaks with some hesitation. He refers to other cases in which slighter mental disturbance has arisen in connection with morbus Brightii. A man long at Guy's—a chronic and most typical case—was constantly in a rambling state of mind, and sometimes incoherent.

Dr. Clouston observes that the insanity of Bright's disease is usually found in chronic cases, with contracted kidneys, cardiac hypertrophy, and dropsy. He describes the symptoms as those of "mania of a delirious kind, with extreme restlessness, delusions as to persons round the patient, an absolute want of fear of jumping through windows, or other actions that would kill or injure. The symptoms are characterised by remission, during which the patient is quiet, rather composed in mind and rational, but very prostrate in body" ("Mental Diseases," p. 596). A series of cases under the title of "Insanity as a Symptom of Bright's Disease," have been recorded* by the medical superintendent of the female department of the Norristown Asylum (Penn.), Dr. Alice Bennett. At this institution the kidneys have been found very frequently affected, and uræmic poisoning is reported to be a common cause of insanity. Further, although the mental symptoms vary, the most constant one is "some form of mental pain, ranging from simple depression through all degrees and varieties of delusions of persecutions, self-condemnation, and apprehension, with or without hallucinations, up to a condition characterised by a frenzy of fear, with extraordinary motor excitement and rapid physical prostration, the 'grave delirium' or 'typhomania' of some authors." There may be not only great restlessness but convulsions, chorea, or catalepsy. Dr. Bennett lays great stress on the sense of impending danger, the overwhelming fear of some threatening calamity, as a marked and frequent symptom.

The number of cases reported amount to sixty, and are divided into as many as ten groups:—(1) Cases (twelve) rapidly fatal, including some falling under the head of typhomania; (2) cases (twelve) less rapidly fatal; (3) cases (eight) terminating in rapid recovery; (4) cases (three) recovering after many months; (5) cases (four) improved and nearly stationary for years; (6) cases (three) running a very slow downward course; (7) cases (two) illustrating a transformation of melan-

* See *Alienist and Neurologist*, October 1890.

cholia into secondary paranoia, with delusions of personal grandeur; (8) cases (four) of puerperal origin; (9) cases (two, also puerperal) complicated with chorea; (10) cases (three complicated) with epileptic form of convulsion—the epileptiform “melancholia” of some authors.

Each of these cases, including seven more recent ones, is briefly reported, the condition of the urine carefully noted, and the autopsy (when performed) is recorded. This valuable addition to the subject of the present article is the most elaborate contribution made to the Insanity of Bright's disease (*See* PATHOLOGY).

THE EDITOR.

BRITAIN, INSANITY IN. (*See* GREAT BRITAIN, INSANITY IN.)

BROMIDES. (*See* SEDATIVES.)

BROMIDROSIPHOBIA (*βρῶμος*, a stench; *ἰδρῶς*, an exudation; *φόβος*, fear). The morbid dread of, and the sense hallucination as to, the presence of offensive odours or emanations from the body.

BRUISES.—Unjust charges have in some instances been brought against those having the insane under their care, in consequence of discoloration of the skin arising from other causes than violence. Dr. Bucknill's attention was called to this point owing to the occurrence of several cases of a suspicious character, which further investigation satisfied him were the result of natural causes, in fact pathological changes analogous to those occurring in scurvy. He found that they extended to parts to which violence could not have been applied; that the discoloration was uniform in the parts that were at the same time affected, whereas bruises show different degrees of change according to the degrees of injury; that the discoloration was not accompanied by injury to the cuticle, or induration of the cutis; that it took place in persons whose enfeebled powers rendered the existence of blood dyscrasia highly probable; and lastly, that the discoloration in question faded away more rapidly than bruises would have done. Dr. Bucknill relates an instance in which he was misled into censuring a nurse severely on account of apparent bruises on the legs of a maniac. When, however, the patient became clearer in mind she stated that the dark reddish marks which covered her legs had been there all her life, and were, in fact, *taches de naissance* (“The Asylum Journal of Mental Science,” vol. i. p. 105).

The case of a soldier on board ship was reported by the surgeon of the vessel (Mr. Tait), in the same Journal, in which dis-

coloration of the skin resembled bruises, and it was supposed that he had injured his leg in getting into his hammock. The result of further observation, and of the treatment adopted, proved that the diagnosis was incorrect, and that the man suffered from an impoverished state of his blood (*op. cit.* p. 176).

Mr. Green, the medical superintendent of the Birmingham Borough Asylum, reported cases of a precisely similar character. In one patient admitted, covered with marks on the skin which were supposed to be bruises, the discoloration soon passed away, but not long afterwards the same appearance presented itself without any suspicion of violence. The friends of the patient thought differently, and removed her, with bitter complaints of the treatment she had received at the asylum. Some time afterwards the family became convinced that they were mistaken, and desired Mr. Green to re-admit the patient (*op. cit.* p. 175).

While, however, these exceptional cases should put those who are concerned with the insane on their guard against hastily concluding that violent treatment has been committed, it would be a great mistake to allow a special pleader to make improper use of them in the defence of a client justly charged with cruelty or carelessness.

THE EDITOR.

BRYGMUS (*βρυγμός*, from *βρύχω*, I gnash the teeth). Stridor dentium; grinding of the teeth observed in epilepsy and other convulsive diseases, arising from spasm of the muscles of the lower jaw. Also the grinding of teeth due to peripheral nervous irritation.

BULBAR DISEASES (diseases of the *bulb* or medulla oblongata and upper part of the spinal cord). A term under which some old authors include epilepsy and bulbar paralysis.

BULESIS (*βούλησις*, a willing). The will. Another form of Boulesis.

BULIMIA, BULIMUS or **BULIMY** (*βοῦ*, augmentative particle; *λιμός*, hunger). A morbid hunger occurring chiefly in idiots, demented, and maniacs, in which the patients eat so inordinately that regurgitation or vomiting occurs, and then they eat again; the so-called canine hunger. The older writers regarded this as an important symptom, and paid great attention to its varieties. (Fr. *boulimie*, *faim canine*, *addéphagie*; Ger. *Heisshunger*, *Gefrässigkeit*.)

BULIMIA CYNOREXIA (*βοῦ*, *λιμός*, *κύων*, a dog; *ᾠρεξις*, appetite). A morbidly voracious appetite; canine appetite.

C

CACÆSTHESIS (κακός, bad; αἴσθησις, sensation). A term for any bad or morbid sensation. (Fr. *cacæsthesie*; Ger. *Kaküsthesie*.)

CACHEXIA AFRICANA (κακός, bad; ἔξις, a habit; *Africana*, relating to Africa). A morbid desire for dirt-eating among the negroes of Africa. Also called *cachexia aquosa*.

CACHEXIA AQUOSA (κακός, bad; ἔξις, a habit; *aquosus*, watery, dropsical). A term applied to an anæmic condition leading to serous effusions, and often accompanied by perversion of appetite, seen in hot climates, and especially among the native population. There is little doubt that some forms of the affection are propagated by imitation.

CACHINATION (*cachinno*, from καχάζω, I laugh immoderately). Immoderate and excessive laughter without apparent cause. A symptom of mania and hysteria.

CACOÆSTHESIS (κακός, αἴσθησις). (See **CACÆSTHESIS**.)

CACODÆMONOMANIA (κακός, bad; δαίμων, a god or 'spirit; μανία, madness). A term applied to that form of delusional insanity in which a person believes himself to be, or to be inhabited by, or possessed of, a devil or some evil spirit.

CACOPATHIA (κακός, bad; πάθος, affliction). An old term used by Hippocrates for a severe affection or malady of the mind, such as melancholia.

CACOSOMNIA (κακός, bad; *somnus*, sleep). An old term for sleeplessness.

CACOTHYMIA (κακός, bad; θυμός, the mind). A disordered, depraved, or morbid condition of the mind; any mental affection with depravation of the morals.

CACOU (a corruption of Cagou or Cagot, *q.v.*). A term for a Cagou, and incorrectly for a Cretin.

CADIVA INSANIA (*cadivus*, from *cado*, I fall; *insania*, senselessness). A synonym of Epilepsy.

CADUCA PASSIO (*caducus*, falling, from *cado*, I fall; *passio*, a suffering). A synonym of Epilepsy, the "falling sickness," as it is termed in some parts of England.

CADUCUS MORBUS (*caducus*, falling; *morbis*, a disease). The falling disease, or Epilepsy.

CÆCITAS VERBALIS (*cæcus*, blind; *verbalis*, pertaining to words). Word-blindness. A condition in which, from

the unilateral destruction of the nervous centre of sight, a person, although able to speak and write words, is unable to understand anything that is written. (See **WORD-BLINDNESS**.)

CÆNÆSTHESIS (κακός, new; αἴσθησις, sensation). A term for that feeling in the body generally which induces on the one hand sensations of lightness, sprightliness, and elasticity, and on the other lassitude and weariness, without the intervention of muscular labour or disease. It has been spoken of as the sixth sense. Common Sensation.

CÆNÆSTHESIS, MORBID (κακός; αἴσθησις; *morbis*, a disease). An excessive and inordinate development of activity and energy, or of lethargy and lassitude, not caused by extraneous excitement or muscular labour. Either of these is a common symptom in incipient mental affections.

CAFFOS. A name given in France to Cretins.

CAGOTS (probably *can* or *ca* and *got*, a provincial corruption of *canis gothus*—a Gothic dog, from their supposed descent from the Visigoths). A name given to certain proscribed races inhabiting the Basque provinces, Béarn and Gascony. In the Middle Ages they were excluded from all political and social rights, and were compelled to wear a special dress. They are fast disappearing. They must not be confounded with Cretins. It is probable that they laboured under a form of leprosy, less marked than was the case in ordinary lepers. Leucoderma (?).

CALABAR BEAN. (See **PHYSOSTIGMA**.)

CALENTURA (*caleo*, I am hot). A Spanish term for fever. The name has also been given to a disease common to sailors in the tropics; an absence of febrile symptoms, with delusions and optic hallucinations, are the principal signs: in their delirium the patients, it is said, fancy the sea to be green fields, and are ready to leap into it if not prevented. (See **PARAPHROSYNE CALENTURA**.)

CALLOMANIA (κάλλος, beauty; μανία, madness). A synonym of the Monomania of beauty and grace.

CAMISOLE (Fr. from Ital. *camiciola*, a small shirt). A strait waistcoat used for the confinement of the violently in-

* The Cagots, by Hack Tuke, M.D., *Anthropological Journal*, 1830.

sane. (Fr. *camisole de force*; Ger. *Zwangsjacke*, *Zwangswannens*.)

CAMPHOR.—A stimulant producing very variable symptoms according to the subject. Often the condition which is produced is analogous to alcoholic intoxication, with intellectual exaltation, delirium, headache, and cerebral congestion. At other times it has a tendency to cause syncope. A patient observed by Edwards suffered from remarkable disorders of equilibration; he felt unnaturally light, as if he could not retain his hold of the earth, and as if he just skimmed the ground in walking. The abuse of camphor causes a sense of suffocation, tumultuous beating of the heart, and tetanic convulsions. Collapse and muttering delirium have been observed.

M. LEGRAIN.

CANADA, Provision for the Insane in.—It cannot be said that the history of the insane in the British Colony of Canada has been a very creditable one. The first asylum in the province of Ontario was at Toronto, and was opened in 1843. In 1845 an English visitor (J. Hack Tuke) described it as "one of the most painful and distressing places" he ever visited. The house had "a terribly dark aspect within and without, and was intended for a prison. There were about 70 patients upon whose faces misery, starvation, and suffering were indelibly impressed. The doctor pursues the exploded system of constantly cupping, bleeding, blistering, and purging his patients, giving them also the smallest quantity of food, and that of the poorest quality. No meat is allowed. . . . Every one looked emaciated and wretched. Strongly built men were shrunk to skeletons, and poor idiots were lying on their beds motionless and as if half dead. Every patient has his or her head shaved." Yet the doctor asserted that this was the only method of treating lunatics. Subsequently a change was made in the management. Dr. Workman, who still lives at Toronto, at a very advanced age, introduced reforms, and it is an interesting fact that within a recent period he has taken an active part in the establishment of the Protestant Hospital at Montreal, of which Dr. Burgess is the first superintendent.

The Nestor of Canadian alienists can look back to the past and present condition of the insane in the colony with the satisfaction of knowing that whatever defects remain unremedied, the contrast shows a vast advance in their comfort and general welfare. In addition to the Toronto asylum, containing more than ten times the number of patients that were

there in 1845, Ontario has three other asylums, all excellent—namely, at Kingston, London, and Hamilton. We have not a recent return of the number of inmates, but when visited by the writer in 1884 the figures were respectively 449, 884 and 547, making with Toronto the total of 2583 patients in the asylums of this province. Dr. Workman states that the proportion of ascertained lunatics to the population is 1 to 700, but that probably it is as high as 1 in 500. In the province of Quebec there is the notorious Longue Pointe asylum at Montreal, recently the scene of a destructive fire, with a capacity for 1000 patients; the Beaufort asylum at Quebec, established in 1845, and the Protestant asylum already mentioned, designed for 200 patients. There is accommodation in the Beaufort asylum for between 900 and 1000 patients. An unhappy history attaches to the above-mentioned institution, the Longue Pointe Asylum, near Montreal, bearing the title of *Hospice des Aliénés de St. Jean de Dieu*. A religious order, the *Soeurs de Providence*, established it, and it was opened in 1876. The province of Quebec, unwisely for the patients, contracted with them to maintain the insane poor resident in one district of this province. It is unnecessary to describe in detail the very unsatisfactory condition in which the writer found this asylum in 1884, but the following passages may be quoted from the report made by him, full justice being done at the same time to the comfortable appearance and cleanliness of some of the galleries and rooms of the institution.

"It is impossible to convey an adequate idea of the condition of the patients confined in the gallery in the roof and basement. They constitute the refractory class—acute and chronic maniacs. They, and the accommodation which has hitherto been provided for them, must be seen to be fully realised. To any one accustomed to a well-ordered institution for the insane, the spectacle is one of the most painful character. . . . There was in the highest storey, that in the roof, a gloomy corridor, in which at least 40 refractory men were crowded together; some were walking about, but most were sitting on benches against the wall, or in restraint chairs fixed to the floor, the occupants being secured to them by straps. Of those seated on the benches, or facing the gallery, a considerable number were restrained by handcuffs attached to a belt, some of the cuffs being the ordinary ones used for prisoners, the others being leather. . . . The walls and floor of the corridor in the roof were absolutely bare. But if

the condition of the corridor and the patients presented a melancholy sight, what can be said of the adjoining cells in which they slept at night and are secluded by day? These are situated between the corridor and a narrow passage lighted by windows in the roof. Over each door is an opening the same width as the top of the door, and 3 to 4 inches in height, which can be closed or not, as the attendant wishes. This aperture is, when opened, *the only means* of lighting the cell. The door is secured by a bolt, above and below, and by a padlock in the middle. In the door itself is a *guichet* or wicket, secured (when closed) by a button. When open a patient is just able to protrude the head. There is no window in the room, so that when the aperture over the door is closed it is absolutely dark. When the bolts of the door of the first cell were drawn back and the padlock removed, a man was seen crouching on a straw mattress rolled up in the corner of the room, a loose cloth at his feet, and he stark naked, rigorously restrained by handcuffs and belt. The reason assigned for his seclusion was the usual one—namely, “He would tear his clothes if free.” The door being closed upon this unfortunate man, we heard sounds proceeding from neighbouring cells, and saw some of the occupants. One, who was deaf and dumb as well as insane, and who was designated *l’homme inconnu*, was similarly manacled. In his cell there was nothing for him to lie or sit upon but the bare floor. The lady superior informed us that it was frequently necessary to strap the patients down to their beds in the night. The corresponding portion of the building on the female side was even more painful, for when, after seeing the women, who were crowded together in the gallery on benches and in fixed chairs (many also being restrained by various mechanical appliances), we went into the narrow passage between the pens and the outer wall, the frantic yells of the patients and the banging against the doors constituted a veritable pandemonium. The effect was heightened when the *guichets* in the doors were unbuttoned and the heads of the inmates were protruded in a row, like so many beasts, as far as they could reach. Into this human menagerie what ray of hope can ever enter? The bolts and padlocks were removed in a few instances, and some of the women were confined by leathern muffs, solitary confinement not being sufficient. In the basement were found some 70 men, and as many women, in dark, low rooms. Their condition was

very similar to that already described as existing in the top ward, a good many were restrained one way or another, for what reason it was difficult to understand. The herding together of these patients is pitiful to behold, and the condition of this nether region must in the night be bad in the extreme.”*

The Medico-Chirurgical Society of Montreal soon after this report was written passed a series of resolutions, one of which expressed the belief that in every material respect it was true and well founded; another being that all establishments for the treatment of the insane should be owned, directed, controlled, and supervised by the Government itself, without the intervention of any intermediate party.

Legislation followed, and it was hoped that the condition of this and other institutions for the insane in Canada would be improved. How far this was the case we do not know, but the resistance offered to reform was persistent, and to a large extent successful. In 1890 a fire broke out in the Longue Pointe Asylum, a large portion of the building, including the chamber of horrors in the roof, was destroyed, and at least a hundred patients perished in the flames.

We have not commented upon the condition of the Quebec asylum (Beaufort). Suffice it to say that its state in 1884 was far from creditable to the authorities, and that the contrast between the asylums situated in the province of Quebec and those of the adjoining province of Ontario has hitherto been extraordinary.

Those asylums in Ontario which are of a public character are by “An Act respecting lunatic asylums, and the custody of insane persons” (1871), vested in the Crown, and the Lieutenant-Governor has the appointment of the medical superintendent. Private asylums are permitted, licences being granted by the justices of the peace.

The asylums in Canada are inspected from time to time by the inspectors of public charities and prisons.

In regard to the other British provinces, it may be stated that there are asylums in Prince Edward’s Island (capacity about 100), Nova Scotia (about 400), St. John’s, New Brunswick (370), St. John’s, Newfoundland (about 150). We believe that an asylum has been opened at West Selkirk, Manitoba. Probably the number of patients in asylums in Upper and Lower Canada amounts to 5000, and in the other British provinces to at least 1500.

THE EDITOR.

* “The Insane in the United States and Canada.”
By D. Hack Tuke, M.D. London. 1885.

CANCER IN RELATION TO MENTAL DISORDER.—Dr. Mackenzie Bacon published in the *Journal of Mental Science*, 1865 (p. 74), a case of cancerous tumour of the brain in a man with congenital imbecility, attacks of recurrent mania and imperfect hemiplegia. He notes the rarity of such tumours, and quotes French statistics showing only 22 cases of cancer of the brain out of 8289 deaths. In 200 cases of insanity Dr. H. Sutherland found only four instances of cerebral tumour. Dr. Ogle reported in the above volume of the *Journal of Mental Science* ten cases of carcinoma of the brain at St. George's Hospital, and states that there was not during life anything of the nature of mental imbecility or any symptom of the various phases or forms of insanity. In one case, however, there was an epileptic seizure, and Dr. Bacon, in his article refers to a case of epilepsy in the St. Maria Nuova Hospital in Florence, associated with cancer of the brain, but as the fits had existed for more than twenty years, the connection between the two could not be regarded as probable. Dr. Clovis Gallopin reported a case of cancer of the brain in an imbecile labouring under epileptic attack, in the *Annales Médico-Psychologiques*, 1877-8. M. Berthier, in the same journal, 1869, endeavoured to trace the concomitance of cancer with insanity, and concluded: "Mental derangement, observed in the initial period of brain-cancer, partakes somewhat of general, and somewhat of febrile, delirium, passing on to stupidity and ultimately to dementia. Neither hypochondriasis nor megalomania arises. Cancerous insanity, properly so called, although rare, undoubtedly occurs."* A case of melancholia with cancerous tumour of middle lobe of brain, &c., is reported by Dr. Clouston in the *Journal of Mental Science*, January 1878. The mental symptoms assumed the form so often associated with disease of the alimentary canal. There were small masses of cancer at the pyloric end of the stomach. The case, therefore, is not of the same interest, from the present point of view, as those of Dr. Bacon and Dr. Ogle, in which the brain was the seat of primary malignant disease.

Dr. Herbert Snow informs us that independently of actual brain-deposit, insanity is not uncommon among cancer-patients, and that the incurable wards of the Cancer Hospital are seldom without two or three such cases. Women with uterine carcinoma most frequently develop maniacal symptoms. Men with growths

* *Journal of Mental Science*, January 1871.

about the neck become subject to dementia. At Hanwell, during the period 1869-89, 8 men were admitted with insanity secondary to malignant disease; while 20 others died from the latter, developed after admission. THE EDITOR.

CANCHASMUS (*καγχασμός*, from *καγχάζω*, I laugh loudly). A term for the immoderate laughter observed during a hysterical fit.

CANINA APPETENTIA (*caninus*, belonging to a dog; *appetentia*, desire). Canine appetite. A synonym of *Bulimia*.

CANNABIS INDICA. (See *SEDATIVES*.)

CANTHARIDES.—In large doses, cantharides causes a state analogous to certain forms of hydrophobia called by the French *hydrophobie cantharidique*. Along with the physical symptoms, the intelligence is disordered, the patients present a horrified aspect, alternately excited and depressed; they are in a state of furious delirium, vociferating incoherently, suffering from clonic convulsions, while the spinal cord is in so irritable a state that the slightest touch produces a tetanic condition. The aphrodisiac effects of cantharides are generally admitted, although recently called in question. Medical literature contains numerous cases in which a sort of mania or erotic furor was observed (Tardieu and Dechambre). Death may terminate this condition in a few days. The reader is referred to the article on cantharides by Gubler, in the *Diction. Encyclop. des Sciences Médicales*. M. LEGRAIN.

CAPACITY, MENTAL (*capacitas*, from *capax*, roomy; *mens*, the mind). The extent or comprehensiveness of the mind; the power of receiving ideas or knowledge; passive mental capability; the receptive faculty. Also active mental power or ability in a moral or a legal sense.

CAPOTS (for etymology see *CRETINS*). A name given in France to *Cretins*, under the false impression that they were allied to *Cagots* in their physical development. (See *CAGOTS*, of which *Capots* is probably a corruption.)

CARDIAC DISEASE IN THE INSANE.—The circulation is readily influenced by morbid conditions of the mind, and it has been noted that pathological conditions of the circulatory apparatus exercise potent influence upon the mental processes. The blush due to passion, the lividity produced by intense fear, and a condition of general irritability common to subjects of heart disease, are all examples of this mutual connection between the mind and the circulation. In the

anguish, distress, and fear of impending death, sometimes observed in patients suffering from organic heart disease, we have presented before us an extensive field for the study of the relations between mind and body; in these cases, what were at first merely hypochondriacal ideas, may ultimately develop into delusions; and a condition of general irritability may change to an outburst of maniacal excitement or develop into acute depression.

Frequency of Different Forms of Heart Disease in the Insane.—The relative frequency of heart disease among the insane varies considerably, being regulated by several factors; among others, geographical and geological influences probably occupy a prominent place. It is recognised that certain districts are more liable to heart disease than others, and in the asylums connected with these districts the disease is more prevalent than in other asylums. We find that of 3498 deaths in English asylums, in 234 individuals—6.69 per cent.—the cause of death was ascribed to heart disease. But if we take statistics from the asylums separately, the proportion of "heart deaths" is found to vary from 6 to 13 and even 14 per cent. Thus, in one asylum,* heart disease was the primary cause of death in 32 cases of 218 consecutive deaths—14.68 per cent. In the same asylum 672 patients were examined on admission, and in 86 evidences of organic cardiac disease were discovered—12.80 per cent. It occurs most frequently among chronic forms of insanity, and is a more frequent accompaniment of mania than of melancholia. In 39 general paralytics 7 had heart disease. Among epileptics heart disease appears to be rare, perhaps owing to the fact that the average age of epileptics is not that which usually induces cardiac changes.

The aortic valve is affected less frequently than the mitral, for in 222 deaths the former was diseased in 31, and the latter in 46 cases. Hypertrophy of the heart—generally left sided—is frequently found in cases of insanity, more especially in mania, melancholia and general paralysis; and it is found to occur in about one-fourth of all cases examined. Atrophy is rare, occurring in only 4 per cent. of the cases; it is generally found associated with wasting diseases. The cardiac muscle is frequently found diseased in the insane; it is soft and friable, and microscopically evidences of degeneration are found. True fatty degeneration of the muscular fibre is rare, but a condition of fatty infiltration of the intermuscular tissue was found in 10 per cent., and is

closely associated with prolonged wasting diseases, such as phthisis. Pericardial changes are relatively frequent, evidences of old inflammatory patches or even adhesions being found in about 30 per cent. of all the cases. Atheroma of the arteries is found with greater frequency among the insane than the sane; and, with regard to the cerebral arteries, this change occurs much earlier, age appearing to exercise less influence in the insane.

Mental Symptoms due to the Various Forms of Heart Disease.—For the proper discharge of the cerebral functions it is essential that the brain receive an adequate supply of blood; that this blood contain a sufficiency of nourishment; that there be no obstruction to the circulation of the blood within the cranial cavity, and that the blood-carriers, the arteries, capillaries and veins, be in a healthy condition. Now in all the various forms of heart disease, one or other of these factors is at fault: accordingly the mental processes become deranged, and in some way or other changed from the normal. This condition may be due to impaired nourishment, the access of poison to the cerebral cells, or to the total destruction of brain tissue from arrest of blood supply; when the latter occurs in the parts concerned in the higher mental processes, it is rapidly followed by deterioration of the mind, and ends finally in dementia.

According to Mickle,* the following mental symptoms are generally associated with the various forms of cardiac and arterial disease.

(a) *Mitral Regurgitation.*—This disease is frequently associated with some degree of depression, together with delusions of suspicion and persecution; sometimes with gnawing sensations in the head. The patient is often of a morose or sullen temperament.

(b) *Mitral Stenosis.*—In this condition we frequently find the patients are excitable, impulsive and discontented, having delusions of ill-usage, or that their food is poisoned. They are querulous and most difficult to manage.

(c) *Aortic Regurgitation.*—The heart is generally enlarged, weighing from 20 to 25 ounces. This form of heart disease induces sleeplessness and restlessness; the patient becomes loquacious, excitable, and has delusions of exaltation, although in the early stages depression is common. Delusions of internal sensations, such as magnetic influences, and sometimes hallucinations of some of the senses, exist.

(d) *Aortic Stenosis.*—This disease is

* "The Goulstonian Lectures," 1888.

* Cumberland and Westmoreland Lunatic Asylum.

often associated with general paralysis, and in these cases mental failure occurs early; the patient is impulsive, violent, and has delusions of persecution, or that his food is poisoned.

(e) *Atheroma of Aortic Valve*.—This is common in syphilitic types of general paralysis, and is due to the abnormal activity of the heart putting a great strain on the vessel. This activity occurs during the early stage of the disease, when restlessness and excitement are almost continuous. Afterwards, there is a rapid mental failure, with depression and delusions of suspicion. In both aortic stenosis and aortic atheroma, an explanation of the mental symptoms is to be found in the fact that the brain obtains an imperfect supply of arterial blood.

(f) *Mitral and Aortic Disease*.—Patients suffering from disease of both sets of valves, present more of the mental symptoms of aortic than of mitral disease, and this condition is frequently associated with gross brain lesion. They are dirty in their habits, gloomy and demented, and the delusions they express have frequently reference to the diseased organ, such as that it is being eaten away by worms, &c.

(g) *Hypertrophy and Dilatation of the Heart*.—These cases are generally morose, depressed, and have delusions of persecution, or electricity acting upon them. The mental symptoms in these cases are more characteristic of mitral than of aortic disease.

(h) *Degeneration of Cardiac Muscle* gives rise to irritability and restlessness, associated with various delusions, such as being injured, or undergoing persecution. It is common in the later stages of wasting diseases, such as phthisis, and no doubt adds to the mental signs characteristic of this disease.

(i) *Atheroma of Aorta*.—These cases, from being depressed and emotional, rapidly end in dementia from gross brain lesion, due to co-existing atheroma of cerebral arteries.

Disease of other arteries, such as aneurism, frequently gives rise to delusions of snakes, &c., tormenting the patient. Boring sensations are felt, and he is generally suspicious and depressed.

Minute Changes in the Cerebral Arteries.—By aid of the microscope numerous changes are found in the arteries of the brain, more especially in those forms of insanity generally associated with gross brain lesions. When there has been long continued excitement, the muscular coat is generally thickened, and in some cases of epilepsy minute hæmorrhages have been observed. In general paralysis, the small

arteries are hypertrophied, sometimes tortuous, and in places present minute ampullations. The adventitious sheath forms a loose covering to the vessel and its branches, with wide spaces at the points of bifurcation; and here and there along the course of the artery bulging out, leaving a considerable interval between the vessel and its sheath. Within this space, and more especially at the points of bifurcation of the artery, are to be found pathological deposits, consisting of fatty and pigmentary granules. The cerebral arteries in the other forms of mental disease do not present anything characteristic, although undoubtedly pathological conditions are much more frequent in the insane than in the sane, and influence to a certain extent the course of the mental disease.

The General Circulation of the Insane.—In every large asylum cases are to be found, where the circulation is impaired, without evidences of organic cardiac disease. In these cases the pulse is slow, feeble and compressible; and the extremities and ears cold or even livid and swollen. This condition is not unfrequently associated with harshness of the hair and a dry skin; and seems to be due to starvation of the tissues from feebleness of the circulation. It is to be found in two types of insanity (a) in recent cases of acute melancholia rarely, and (b) more frequently in chronic demented. In this latter class, the slow process of evolving nerve impulses from a dormant and sluggish brain seems to produce vascular inhibition; and consequently an interference with the proper circulation of the blood to the peripheral organs. In the course of time, unless treatment is persevered in, stasis of the blood takes place, and œdema and other troubles—the consequences of feeble cardiac and vascular action—result.

F. DUNCAN GREENLEES.

CARPHOLOGY or **CARPOLOGIA** (*κάρφος*, chaff; *λέγω*, I collect). The movements of delirious patients in searching for or grasping at imaginary objects, or picking the bedclothes. (Fr. *carphologie*; Ger. *Flockenlesen*.)

CARUS CATALEPSIA (*κάρος*, heavy sleep; *καταλαμβάνω*, I seize, or attack). A synonym of catalepsy. Carus is a term used for profound sleep, loss of sense and voluntary motion, coma, and by some authors for the profoundest degree of insensibility, the others being sopor, coma, and lethargy.

CARUS ECSTASIS (*κάρος*; *ἐξίστημι*, I suspend). A synonym of Ecstasy (*q.v.*). (For the correct use of Carus, *vide supra*.)

CARUS LETHARGUS (*κάρος*; *lethargus*, drowsiness). A synonym of Lethargy (*q.v.*).

CARUS LETHARGUS CATAPHORA (*κάρος*; *lethargus*; *καταφέρω*, I demolish or lay low). A synonym of Stupor; also Somnolency.

CASE-TAKING OF INSANE PATIENTS.—Correct diagnosis depends very much on careful case-taking. Imperfect case-taking leads to haphazard diagnosis. Complete and accurate notes on cases are not only of immediate value to the physician who has the care of the cases, but are of importance for future reference for the classification, diagnosis, and treatment of disease. Especially is this so in insanity, owing to the diversity of opinion as to the nature of the various forms that it exhibits, the want of a good system of classification, and the uncertainty of treatment. If medical men were to conduct their examinations of insane persons on a systematic plan, and were to take more pains in recording the history of the patient and the symptoms observed in a scientific manner, making notes even of facts that seem, at the time, unimportant, an immense amount of valuable information would be obtained for the purpose of perfecting the science of psychology.

Not only is case-taking important to those who have the care and treatment of the insane, but it is also important to the medical men who examine the patients previous to their being placed under special care. The responsibility of certifying as to the sanity or insanity of an individual is so great that the medical examiner cannot be too careful in forming an opinion, and being able at any subsequent time to state clearly his reasons for having formed this opinion.

In medico-legal inquiries it is absolutely necessary that notes offered as evidence, or admissible for the medical witness to refresh his memory, must have been taken at the time the observations were made, or shortly afterwards.

Previous to Admission.

NOTES FOR THE GUIDANCE OF MEDICAL MEN IN EXAMINING PATIENTS SUPPOSED TO BE OF UNSOUND MIND.

Name of patient in full.

Age . . . Sex . . . Occupation . . .

Date of examination.

Place where examined (*full address*).

Name and address of person or persons who authorise the examination or supply facts.

If the patient is known to examiner, and for how long.

Surroundings.—State and condition of residence and room which the patient occupies.

Behaviour of friends, relatives, and other persons with whom the patient has lived or associated.

If described as of violent behaviour or destructive habits, notice whether it seems that the violence or destruction has been done accidentally, in a fit of passion, or wantonly.

If possible, state whether the patient has been supplied with proper food, clothing, and accommodation.

Family History.—Age and relationship of parents and grand-parents, state of health, if alive, and cause of death, if dead.

Hereditary diseases in family, such as cancer, phthisis, gout, rheumatism, &c. Whether any of the family have suffered from paralysis, epilepsy, hysteria, insanity, &c. Are any of them given to excessive drinking, opium-eating, &c. Some of the relatives or others present during the examination may show signs of neuroses, such as excitability, taciturnity, moroseness, or peculiarity of manner, &c.; if so, state them. Inquire if any of the relations are or have been idiotic, deaf mutes, blind, or deformed, if so, give actual relationship; also as to maternal impression, fright, trouble, &c., during pregnancy of mother.

Individual History.—State of general health past and present. Any long illnesses, and nature of them, with dates. Serious operation or injuries, especially of head. If subject to headache, and its nature—dyspepsia, liver complaints, &c. If addicted to the use of stimulants, and the kind, quantity, and frequency of them. Whether occasionally or often drunk, or if in the habit of taking small quantities of alcohol frequently on an empty stomach. Whether accustomed to moderate or excessive smoking. If of a so-called "gay" disposition, or addicted to self-abuse. Whether he goes to bed or gets up early or late, and sleeps heavily or is sleepless. Inquire as to any business or domestic anxieties or worries. Has he lost any relatives or friends which have affected him? If he has been subjected to any petty persecution or annoyance, such as unkindness and ingratitude from those who owed him favours; misconduct of relatives or children; social ostracism; religious intolerance, &c. Disappointment in love, in seeking an appointment or obtaining any position, or the receipt of a legacy, &c.

Jealousy, and reasons for, if real or fanciful.

In women, inquiry has to be made as to the catamenia, leucorrhœa, &c.; number of children and nature of confinements, miscarriages, &c. If a widow or re-married, some endeavour to obtain some history as to the character of former wife or husband, and the kind of life they led. Inquiries ought to be made as to any suspicion of immoral life.

If a criminal, state nature of crime, association, way he has been brought up, &c.

State of Patient.—From others:—If excited, inquire how long the excitement has lasted, and whether there may be any reasonable cause for it. If depressed, has the depression supervened on excitement or after some trouble? May be morose, demented, unnaturally suspicious, eccentric in manner, dress, or conversation. Is this eccentricity peculiar to the individual, or has it appeared since he has seemed insane? Notice whether his usual manner and behaviour to others has changed lately, how long has this been observed, and in what way? Does he have lucid intervals, how long do they last, and is the patient perfectly or partially sane at these times?

If dangerous to others, and in what way, does he threaten violence or is he actually violent? If he has attempted suicide or spoken of it, by what means has he tried to kill himself, or it is thought he might do so; and does he give any reason for his impulse?

Are there any hallucinations or delusions of seeing or hearing? What form are they?

Mental State.—Is he conscious of his position? Does he recognise his state of mental weakness? Can he identify persons, places, or things correctly? Is he coherent in conversation, and can he sustain a lengthy intercourse?

Is the memory for recent or past events good or bad? Does the patient show any emotional excitement, such as unreasonable fear, grief, or joy? Are there any changes in the natural affections, as an aversion to those he loved or had an affection or regard for? Note his conversation about his relatives and friends, especially their true connection with himself.

Are there any unnatural desires, &c.?

Has he a correct idea of his moral obligation, the duty he owes to those dependent on him, the value of property, his own possessions, hopes of success, promotion, &c.?

Are his religious notions perverted, extravagant, or ridiculous; has he been naturally of a religious turn or has it developed lately? Has he been influenced by any deep or exciting religious impressions?

Are the habits filthy, indecent, disorderly, &c.; and do they seem at variance with his usual habits?

Have the reasoning powers changed? Can he conduct an argument, or is there confusion of ideas? Has he an exaggerated idea of his own self-importance?

If there are delusions, these must be elicited cautiously by taking the patient unawares and gradually leading up to them.

The writing power may be tested, as a lunatic may be able to conceal his delusions in conversation but elicit them in writing, or may be unable to write correctly or intelligently.

Does the patient exhibit any delusion as to his health, his food, his studies, &c.? Try to find out his peculiar "hobby," scientific, political, &c., and see if he is coherent on it.

On Admission.

FORM FOR INQUIRIES FROM FRIENDS, RELATIVES, AND OTHERS WHO BRING PATIENTS, FOR TRANSFERENCE TO CASE-BOOK.

Name of patient.

Date of admission.

Names and addresses of persons who brought patient.

History.

Hereditary:—

Mother.

Father.

Mother's father.

Mother's mother.

Father's father.

Father's mother.

Other relatives.

Relationship of parents, and grandparents, to one another.

Hereditary diseases in family—

Consumption . Gout . Rheumatism

Syphilis . Epilepsy . Paralysis

Insanity . Drunkenness

Nature of present and previous avocation.

Successful or unsuccessful?

Number of hours engaged.

Residence healthy or unhealthy.—Has patient resided abroad, and where and for how long?

Marriage—if happy.

If widowed, affected or not by loss.

If re-married, and frequency of marriages.

Single—whether engaged, and length of time if it is a suitable engagement.

Disappointment in love, causes.

Number of children and state of their health; if any have died, cause of death.

Number of miscarriages, difficult labours, puerperal fevers, &c.

Illnesses, nature and duration of.

Injuries, kind and effect; operations.

Previous Attacks (if any)—

Nature. Causes. Duration.

When, where, and for what period under treatment.

Present Attack—

Premonitory symptoms, and duration of.

Actual symptoms of insanity.

Nature and duration of.

Lucid intervals.

Whether homicidal, and how?

Whether suicidal, and by what means?

Whether dangerous to himself or to others, and in what way?

If epileptic—frequency of fits.

Whether they have increased or decreased.

Delusions.

Illusions.

Causes.—*Predisposing*—

Physical strain.

Mental strain.

Ill health.

Exciting—

Physical—Injuries—Poisons—Want.

Moral and Mental.

Trouble—worries.

Loss of friends, &c.

Shock—fright.

Fits.

Other facts.

State on Admission.

(Memoranda to be placed at beginning of Case-book.)

Bodily—Height. Weight: On admission; on discharge.

Appearance—photograph.

Temperament or diathesis:—Gouty or arthritic—strumous—nervous—bilious—lymphatic—hybrids of above—muscularity—fatness.

Physical Features.—Colour and condition of hair (baldness)—greyness—rash along edges (coronal syphilitic rash)—muscularity—fatness—injuries or diseases of skin (cicatrices, &c.)—injuries or diseases of bones (nodes, &c.)—thermometrical temperature, right side; left side.

Head, form of: measure of transverse and longitudinal diameters—mesocephalic, the transverse diameter is to the

longitudinal as 70–80 is to 100. Dolichocephalic, the transverse diameter falls short of this. Brachycephalic, the transverse diameter exceeds this. Plagiocephalic, oblique asymmetry.

Facial angle.

Crusces.—Platycephalic skull has a small vertical and large transverse diameter; oxycephalic, has a large vertical and small transverse diameter; scaphocephalic, has the parietal bones inclined towards one another like a roof; clinoccephalic, has a saddle-like depression in the temporal regions; sphenoccephalic, has a wedge-like prominence in the regions of the great fontanelle.

State of the sutures.

Facial Expression.—Regular or irregular features—smoothness. Lips, thin or thick—colour of—full under lip (sensuality)—scars on angle of mouth—hare-lip—indented. Palate, arched—cleft, V-shaped, &c. Teeth, regular—irregular—notched—decayed, &c.

Gums, pale—spongy—red line along, &c.

Neck and Throat.—Thick—thin—long—short.

State of glands.

Hands.—Long and thin—short and stubby, “clubbed”—moist or dry; colour, &c.

State of nails—enlargement of epiphyses—movements of hands—wasting of ball of thumb—warts on forefinger (in female frequently a sign of masturbation).

Feet.—Nodosities—œdema—deformities—flat—splay, &c.

Gait.—Shuffling or trailing—dragging—exaggerated trotting—waddling—like a drunken person—sprawling—spasmodic or spastic.

Sexual Organs.—Abnormalities of penis and testicles—hair on pubes. Signs of masturbation—signs of syphilis (chancre, bubo, &c.).

In women.—Catamenia—leucorrhœa—amenorrhœa—warts on labiæ—labiæ deformed—state of breasts—signs of pregnancy, recent and remote.

Vegetative Functions.—*Circulation*.—Pulse, frequency and character. Fast—slow—slack—tight—hard—delayed—bounding—wiry—dicrotic—irregular—intermittent—unequal—sphygmographic tracing. Flushing of face—injection of conjunctiva. Varicosity of veins. Cardiac murmurs—mitral systolic—mitral presystolic—tricuspid systolic—aortic systolic—aortic diastolic—pulmonic systolic. Size of heart (by percussion). Position of apex beat.

Respiration.—State of lungs—dulness and sinking under clavicles—fre-

quency — capacity (by counting or spirometer)—expansion deep or shallow —effect of effort — Cheyne-Stokes — sighing — stridor — dyspnoea — cough (nature of) — hiccough — sputa — voice firm or feeble—aphonia.

Alimentary Canal. — Dysphagia — vomiting—appetite—anoxia—pyrosis. Tongue—mode of protrusion—tremulous — dry — ulcerated — indented — swollen—fissured (syphilis)—scars of bites (epilepsy)—coated—furred—raw — condition of bowels — regular or irregular—constipated—relaxed—flatulence. Stools — fatty — dark and offensive — slimy — pale or yellow — bloody — accumulation in colon. — Stomach—enlarged—tender—tumours.

Glandular System. — Liver — size and position—smooth or irregular.

Spleen—enlarged, &c.

Thyroid and other glands.

Kidneys—Size and position.

Power of micturating or retaining urine.

Urine.—Bulk—colour — sediments—urea (estimation of)—specific gravity—albumen — casts — sugar — hæmoglobin.

Skin.—Moist or dry—colour—eruptions—tumours, &c.—“goose skin.”

Muscular System.—Development—power of grasp in both hands—gait in walking —cramp—contraction—tremor—reaction to electric stimulus.

Nervous System—

Sensation.—Special senses.

(a) Sight. — *Eyelids* : — Puffy — quivering—ptosis.

Eyes : — Position, oblique — protruding—squinting — dull—heavy — bright — conjugate movements—nystagmus.

Pupils :—Shape and size—myosis—mydriasis — ulceration — iritis — inequality — clonic spasm—arcus senilis—loss of pupil reflex.

Ophthalmoscopic appearances :—optic neuritis—atrophy—hæmorrhage into retina.

State of vision—photophobia.

Colour vision—*muscæ volitantes*.

Hallucinations, delusions and illusions of sight.

(b) Hearing.—Shape of external ear — hæmatoma auris, acuteness of hearing — deafness — how long deaf—if permanent or temporary or worse at times—tinnitus — hallucinations or illusions.

(c) Taste.—Morbid taste—peculiarities—test sense of — hallucinations—illusions—delusions.

(d) Smell.—Peculiarities of nose and nostrils.

Aquiline—Grecian or straight —wide nostrilled or cogitative.

Hawk-shaped or Jewish — snub.

Cicatrices.

Sense of smell—hallucinations and illusions.

Nervous Sensibility—

Hyperæsthesia—anaesthesia — effect of heat or cold.

Reflex phenomena.

(a) *Vesicle.*—Intermittent or persistent incontinence of urine.

(b) *Superficial.* — Plantar—gluteal—cremasteric — abdominal — epigastric—palmar—contraction of iris — sneezing — conjunctival reflex.

(c) *Deep.*—Patella-tendon reflex — ankle clonus—wrist clonus.

Signs of paralysis—rigidity.

Signs of epilepsy—aura—frequency.

Signs of hysteria.

Headache.—1. Anæmic. 2. Dyspeptic, 3. Congestive. 4. Febrile. 5. Toxic. 6. Rheumatic. 7. Hysterical. 8. Syphilitic. 9. Organic disease.

Vertigo.—Menière's disease.

Delirium.

Convulsions.

Speech.—Affections of—aphasia—sensory or motor aphemia — verbal amnesia—dysarthria.

Mental Symptoms.—Consciousness—volition—perception—identity — attention — coherence of language—memory for recent, for past, events—exaltation—or depression of spirits—excitement—enfeeblement.

Emotions. — Sexual — love — joy — hope—fear—grief—remorse—sleeplessness—reflex emotional states.

Æsthetic Feelings.—Power of appreciating beauty, or the incongruous, or of understanding a pun or joke — orderliness.

Ethical or Moral.—Idea of duty to others—to self—value of property—obedience to laws, &c.—religious ideas, exaggerated or perverted — habits — filthy — destructive — indecent—reflex ethical sentiments.

Intellect.—Ideation : power of forming ideas.—Reasoning faculty : able to conduct an argument.—Imagination : exaggerated or lost—illusions—delusions—fancy. Conception : power of receiving abstract ideas—association and confusion of ideas or images—

reflex association—general innate mental faculties—general cognate or acquired faculties—handwriting on admission—handwriting on discharge.

Progress of case—treatment and results.

A. H. NEWTH.

[Reference.—Journal of Mental Science, vol. xvi. p. 230.]

CATABYTHISMOMANIA (καταβυθισμός, submersion; μανία, madness). A form of suicidal mania in which the patient is bent on self-destruction by drowning.

CATABYTHISMUS (καταβυθίζω, I submerge). Suicide by drowning.

CATALENTIA (probably for Catalemtia, from καταλαμβάνω, I seize or attack). A Paracelsian term for epilepsy.

CATALEPSIA CEREÆ (καταλαμβάνω, cereus, waxen). Catalepsy with such passive rigidity that the limbs may be placed in any position and will retain it as if moulded in wax. The rigidity is at first considerable and movement is resisted, but after a short time the limbs can be moved and then remain in any position in which they may be placed. The rigidity commonly slowly yields to gravitation. (See CATALEPSY, and HYSTERIA.)

CATALEPSIA SPURIA (καταλαμβάνω; spurius, false). A synonym of Ecstasy (q.v.)

CATALEPSY (κατάληψομαι, fut. of καταλαμβάνω, I seize or attack; κατάληψις). **Definition.**—An intermittent neurosis, characterised by the patient's inability to change the position of a limb, while another person can place the muscles in a state of flexion or contraction as he will (*flexibilitas cerea*). The patient is unable to speak. Insensibility is a common, but not essential, symptom. The mental functions are to a great extent or altogether suspended in relation to the external world. In complete catalepsy the individual retains no knowledge of what occurred during the period of the disorder.

Complications.—Catalepsy may be idiopathic. It may be complicated with mental stupor, with or without melancholia (see STUPOR, MENTAL). Other complications are tetanus, and, rarely, chorea and epilepsy. In epidemics of hysteria, demonomania, &c., catalepsy has been often a prominent symptom. It is a common accompaniment of hypnotism.

Diagnosis.—As the essential feature of catalepsy is the passivity of movements, the test of its presence is the raising of the patient's arm or leg to a certain level, and then letting it go. Should it remain in the same attitude, the patient being

unable to change the position, it may be affirmed that it is a case of catalepsy.

It may be mistaken for *ecstasy*. It, however, commences differently. The loss of the sense-functions is sudden in catalepsy, and the patient does not move from his position. On the other hand, the ecstatic patient removes himself from society. He does not lose the use of his limbs, which react to the thoughts with which his mind is occupied. If a limb is extended or flexed, it does not retain its position. The expression of the one is inspired; that of the other is void of emotion or contemplation. The cataleptic has no remembrance of his condition, as a rule; while the ecstatic may remember what he has experienced.

Although catalepsy may accompany *hysteria*, the two are to be distinguished, if the catalepsy is pure and simple, by the absence of the usual signs of a hysterical attack. If there are hysterical contractures, the tetanic rigidity of the muscles differs from that observed in catalepsy.

From *tetanus*, catalepsy is distinguished by the suspension of the mental functions in the latter, and their presence in the former.

The tension of the muscles in tetanus is exceedingly painful, while in catalepsy the patient is free from suffering.

Cataleptic rigidity of the muscles may be confounded with the rigidity which comes on after death, and it is possible that persons have been buried alive in consequence of the apparent cadaveric immobility of the body. There is, however, the essential distinction, that in the one condition the muscles can be moved and moulded into any position, while in the other there is complete and lasting rigidity. A mistake could not occur, if the state of the pulse, the breathing, and the cardiac pulsations were examined. The condition of the eyes is altogether different.

Catalepsy may be *simulated*; but the obvious effort made by the malingerer to retain the muscles in one state, and his inability to retain them for a long period in one position, betray him. This effort is exposed by the recoil of the limb from which a heavy weight has been suspended from a cord when it is cut, and the weight allowed to fall. Probably the man shamming catalepsy would be unable to bear the severe pricking, &c., to which the cataleptic patient is indifferent.

Prognosis.—Favourable if uncomplicated. At the same time, it is probably associated with a neurotic diathesis, upon which may be engrafted actual mental

disorder at some period of the individual's life.

Causes.—Hereditv, moral shock, catamenial irregularity. The influence of shock is shown by the case of a young woman who was insulted by a peasant, and was seized with catalepsy whenever she met him.

Women are probably more liable to catalepsy than men. Of 148 cases reported by Puel, 80 were females and 68 males.

Treatment.—Rousing the patient by the usual stimulating applications, including throwing cold water on the face. Galvanism has also been employed. Apart from the treatment of the attack, the attention to the general health of the patient is the important point to bear in mind. Healthy environment is of the first importance. Hypnotism was tried by Pau de St. Martin; similar attacks were induced, with the result that the symptoms of the true catalepsy gave place to those of artificial catalepsy. Linas, who records the recovery of the patient, adds, "It is a beautiful application of the substitutional method." This is not the place to enter upon the subject of hypnotism, but, as we have intimated, in a large number of hypnotised patients the muscles become cataleptic.

Alienists are well acquainted with cases of mental stupor in which the limbs can be placed in certain positions, in which they remain for a considerable time. It must be borne in mind that these patients are not examples of genuine uncomplicated catalepsy.

Pathology.—Pétetin attributed the attack of catalepsy to erethism of the cerebral substance and engorgement of the blood-vessels, involving pressure on that portion of the brain which is the seat of intelligence, and the origin of the motor and sensory nerves. Pau de St. Martin regarded catalepsy as a transient modification or exaggeration of physiological sleep. He does not explain, however, why the muscles are relaxed in sleep, while they are rigid and waxy in catalepsy.

Eulenburg has fully discussed the explanation of the wax-like flexibility of the muscles in catalepsy, which he thinks more difficult than that of muscular rigidity. His conclusions may be stated as follows:—The possibility of assuming and maintaining unusual positions for a long period, is best explained by the absence of volition with persisting reflex action and co-ordination—that is to say, unrestrained action of the reflex apparatus and the co-ordinating centres of the

spinal cord and medulla oblongata. In health, the will, consciously or unconsciously, inhibits such postures. It must be admitted, however, that reflex irritability is diminished. It may, indeed, be said that there is a difference between the sensory muscular and the sensory cutaneous nerves, as well as between the centres of co-ordination and the reflex apparatus. On what, however, does it depend "that, while a passive motion easily causes a change in the position of the limbs, which is permanent, the most powerful faradic or galvanic irritation of muscles or nerves does not have the same effect? Yet in the latter case there is certainly a much more intense irritation of the sensory muscular nerves than can be caused by moderate passive extension or shortening."

When muscular rigidity occurs as distinguished from *flexibilitas cerea*, Eulenburg thinks it probable that it is of a reflex nature, without resorting to the theory of an increase of the normal muscular tonus, and imagines that in an attack of catalepsy, conditions exist especially favourable to the excitation of reflex action in the voluntary muscles, the absence of cerebral volition rendering reflex muscular action of course easier.

THE EDITOR.

CATALEPSY, ACCESSORY (*καταλαμβάνω*; *accedo*, I approach). Catalepsy originated by or associated with hysteria, epilepsy, tetanus, mania, and other nervous affections.

CATALEPSY, ARTIFICIAL (*καταλαμβάνω*; *artificialis*, from *artificium*, a handicraft). Catalepsy occurring during induced hypnotism. Charcot distinguishes it as the first of the three stages into which he subdivides the hypnotic sleep. It may be induced by a dazzling light, some loud and unexpected sound, or by means of continued visual fixation. Rigid fixation of the limbs, slow, steady respiration, a fixed look with open staring eyes, are the prominent signs. The limbs can be moved passively and remain in whatever posture they are placed without apparent fatigue. Superficial anæsthesia is complete, but the organs of special sense retain their sensibility and are used as media for Suggestion (*q.v.*), which is possible in this stage. Reflex irritability is almost completely abolished, owing to the rigidity of muscles and anæsthesia. This induced catalepsy may also occur in some subjects as a sequel to the lethargic or second stage of Charcot's induced hypnotism, by opening the patient's eyes in a bright light. (See HYPNOTISM.)

CATALEPSY, EPIDEMIC (καταλαμβάνω; ἐπιδήμιος, among the people). Catalepsy propagated by imitation in impressionable persons of a hysteroneurotic temperament, especially where hygienic and moral conditions are unfavourable.

CATALEPTIC (καταλαμβάνω, I seize or attack). Of or belonging to catalepsy, simulating catalepsy. (Fr. *cataleptique*; Ger. *Kataleptisch*.)

CATAPHASIA (κατάφασις, affirmation). A morbid condition of speech in which the patient repeats several times the same word, either spontaneously or in answer to a series of questions. If the word be of many syllables, the latter ones are frequently omitted, until perhaps the first only is pronounced. It has not been observed except in connection with extensive disease.

CATAPTOISIS (καταπίπτω, I fall down). A term used by Galen (de Tot. Morb. Temp. c. 4. 5). A sudden falling down of a person as a symptom of epilepsy or of apoplexy; also the failing or paralytic seizure of any particular limb.

CATATONY (κατατείνω, I stretch tightly). A name for a psychosis with motor tension symptoms, catalepsy, tetanoid rigidity, marking the motor side, while stupor, simple melancholia or melancholia attonita marks the psychical. (See *KATATONIA*.)

CATOCHUS (κατοχή, the act of holding firmly, also frenzy, enthusiasm, catalepsy). An old term for catalepsy, but it has been more especially applied to that phase of ecstasy or trance in which the patient is conscious, but cannot move or speak. Under this head would be comprised those cases in which persons have been laid out as dead and even buried, without being able to arouse themselves or show signs of life.

CAUSES OF INSANITY. (See *STATISTICS*.)

CENÆSTHESIS (κοινός, common; αἴσθησις, sensibility). A name given by Reid for the vague sentiment of existence which is the result of the general impressions produced by bodily conditions unconnected with the special senses.

CENOSPUDIA (κενός, empty; κενόσπουδία, zealous pursuit of frivolities). A term for what is known as brown study; mental preoccupation.

CENTRE, CONVULSION, GENERAL (κέντρον, the centre; *convello*, I tear). A centre situated in the medulla oblongata, stimulation of which produces general convulsions. It is excited by rapidly increasing vensity of the blood, and by sudden anæmia of the medulla however produced.

(Fr. *centre convulsif*; Ger. *Centrum der Krampf-bewegung*).

CENTRE, SPEECH (κέντρον). A cortical centre situated in the region of the posterior extremity of the third left (in some cases the right) frontal convolution, where it abuts on the fissure of Sylvius and overlaps the island of Reil. Its destruction produces aphasia (*q.v.*) (Fr. *centre de langage articulé*; Ger. *Sprach-centrum*). (See *BRAIN, PHYSIOLOGY OF*.)

CENTRES, EMOTIONAL (κέντρον; *e, moveo*). Little is known of the existence of such centres. Ferrier has suggested that in the occipital lobe is the centre of visceral sensations, and that in it is placed the centre for pleasurable or painful emotions. (See *BRAIN, PHYSIOLOGY OF*.)

CENTRES, PSYCHICAL (κέντρον; ψυχικός, relating to the mind). The intellectual activity has its centre, according to some, in the anterior part of the frontal lobes, according to others in the occipital lobe; others hold that there is no distinct centre, but that the whole cerebral superficies is involved in the operations of the mind. (Fr. *centres psychiques*.)

CENTRES, PSYCHOMOTOR (κέντρον; ψυχή, the soul or mind; *moveo*, I move). A term applied to certain cortical cerebral regions which are supposed to be the centres from which the mandates of the will for the performance of definite movements emanate. The co-ordination of the muscles required to perform the movements in question is effected by lower centres. (See *BRAIN, PHYSIOLOGY OF*.)

CENTRES, SENSIBILITY, GENERAL (κέντρον; *sentio*, I feel). Ferrier locates the centres of tactile and general sensibility in the region of the hippocampus major. Munk believes these centres to extend over the whole cerebral convolutions, with the exception of the occipital and temporo-sphenoidal lobes; the surface he calls the sensitive sphere.

CEPHALEA (κεφαλή, the head). An inveterate kind of headache. In Mason Good's classification, a genus of the class Neurotica, consisting of aching pain in the head, intolerance of light and sound, and difficulty of bending the mind to mental operations. (Fr. *céphalée*; Ger. *eingewurzelter Kopfschmerz*.)

CEPHALALGIA (κεφαλή, the head; ἄλγος, pain). A term for headache; pain in the head. (Fr. *céphalalgie*; Ger. *Kopfschmerz*.)

CEPHALALGIA NERVOSA (κεφαλή, ἄλγος; *nervosus*, nervous). Nervous headache from whatever cause, whether anæmic, congestive, toxic, or hysteric.

CEPHALIC INDEX (κεφαλικός, belonging to the head: *index*, a pointer). A number indicative of the relation of the greatest transverse diameter of the skull to the greatest antero-posterior diameter, the latter being taken as one hundred. According to Littré and Robin it is the number indicating the relation between the facial angle of one skull and that of another. (Fr. *indice cephalique*.)

CEPHALOMETRY. (See HEAD, CRANIOMETRY, SKULL-MAPPING.)

CERCHNUS (κέρχνος, hoarseness; from, κέρχνω, I make myself hoarse). Hoarseness of voice. (See VOICE, CHANGES OF, IN THE INSANE.)

CEREBELLUM. (See BRAIN, PHYSIOLOGY OF.)

CEREBRAL IRRITATION (*cerebrum*, the brain; *irrito*, I provoke). A term applied to irregular expressions of cerebral function, such as headache, undue sensitiveness to external impressions, restlessness, twitching, or convulsions, peevishness or delirium, produced by inflammatory or other diseases of the brain, and occurring also in some disturbed conditions of the body generally.

CEREBRAL PATHOLOGY. (See PATHOLOGY OF INSANITY.)

CEREBRAL SURPRISE (*cerebrum*). A term used by Trousseau (*surprise cérébrale*) to express the instantaneous but temporary stupor which is caused by grave or sudden lesion of the brain, or by acute mental shock.

CEREBRAL TORPOR. (See STUPOR, MENTAL.)

CEREBRATION (*cerebrum*, the brain). A term applied by Lewes to the assemblage of the cerebral actions consecutive on a perception.

CEREBRATION, UNCONSCIOUS (*cerebrum*, the brain, *un*, neg.: *con*, for *cum*, with; *scio*, I know). The unconscious operation of cerebral or mental action such as may occur during sleep, or whilst the attention is distracted or occupied in some other direction. Hamilton's "latent thought." (See AUTOMATISM, and BRAIN, PHYSIOLOGY OF.)

CÉRÉBRAUX.—What have we to understand under this term, which Lasègue was the first to use, confessing himself that he did not know a better description? "Cérébraux" are patients who, having at some period of their lives met with an accident to the head from which they apparently recovered, after several months or years present symptoms of a very special kind, which, uncertain at the outset, do not correspond to the true actual types of acute cerebral diseases. *E.g.*, "A man, twenty-five years of age, falls from

a horse; he is thrown to the ground, picked up in an unconscious condition, and remains in a sub-comatose state for an hour or two. The surgeon called finds neither fracture of the skull nor any other serious lesion; after having attended to the patient for a few days, he retires, declaring the patient to be on the way to recovery, or to be recovered.

"To begin with this time, the patient belongs no longer to the surgeon, but to the physician. At the end of six months, a year, ten years, or even of fifteen years, the latter will be consulted, fear being expressed of mental derangement; the family speaks of his indefinite mental symptoms, and of an attack which seems to have no characteristics. The physician himself, after most careful examination, does not recognise any symptoms of a primary and definite affection in this secondary disease, growing out of a soil far from being healthy; after further inquiry he learns that at a certain period of his life the patient has had a fall or wound. This traumatism which has injured the skull or the brain, has had the result of making the brain a soil quite different from the cerebral soil of a normal individual."

The whole doctrine of Lasègue is contained in those lines, which we thought necessary to reproduce here; we might complete them by saying that certain malformations of the skull, especially of the bones of the face, and of the base of the skull, may have a decided influence on the production of cerebral symptoms of a very special kind, repeating itself in attacks.

At the commencement the symptoms may be *physical* or *mental*. In the former case vertigo is most commonly observed, bearing a great resemblance to vertigo comitialis. In the middle of his occupation, without any preceding symptoms, the patient has an attack of giddiness and fainting. This condition, which not necessarily has been preceded by a similar one, is transitory. After a few hours no trace remains behind except a little fatigue; there is no hemiplegia and no embarrassment of speech. But the latent tendency is there, and henceforth these conditions repeat themselves at more or less distant intervals, as at the commencement of general paralysis.

In the second case the intellect becomes deranged first, and the observation of this condition becomes more delicate. Whether the patient has had an attack of vertigo, of which we have spoken before, or not, he presents in his character profound modifications: he is at times in a state of singular apathy, unable to work, irritable,

and in a condition of extreme emotion without any cause; the memory, besides, is unfaithful. Then everything seems to be all right again, until some day, with the suddenness of a crisis, the patient commits one of those *bizarre* actions, which are the more significant because they are so absolutely out of character with his education, his manners, and his ways of living. Thus, a gentleman of the higher class, who used to have among his friends the reputation of having very accomplished manners and being very reserved in his language, made use of bad expressions to another person at a social gathering, and without being conscious of his surroundings got into a rage, which remained inexplicable to those who witnessed it.

The physician alone is able to appreciate the symptomatic value of such an attack. He examines the life of the patient, and finding there an accident or injury, he is easily able to give the necessary explanation. He is also able to say that henceforth the patient will have similar attacks, that each one of them will be more violent, and will accelerate the mental ruin of the patient, who will progress towards general paralysis, but does not always become a true general paralytic as we understand it.

We will give a *résumé* in a few words. Lasègue says:—"When the healthy cerebral condition has been disturbed—be it even only for one moment—by an injury, by a lesion of the brain, or by malformation of the skull, cure often means only suppression of the symptoms. The patient, supposed to have recovered, has acquired a morbid diathesis, which governs the rest of his life. He becomes subject to physical or mental disorders, which repeat themselves most commonly under the form of incomplete and irregular crises, and break the solidity of pathological laws, and which we have to study as a special kind of cerebral affection."

This acquired diathesis governs the cerebral derangements in various symptoms. When the mental derangements come on, it is an accident, an unforeseen event in a man who up to that date had been considered perfectly sane; it is a paroxysm in the course of a disease which slumbers.

The initial shock to the brain commands the whole disease, and for this reason the patient was eventually called a *cerebral*.

One example chosen among many others will help us more than any definition, to determine one of the types of these "cérébraux."

A boy twelve years old receives a violent blow with a stick over the head; he

falls down unconscious, and is brought to the hospital, where he remains for three days in a sub-comatose condition. Then he comes back to himself, and after six weeks leaves the hospital apparently recovered. It is noticed that he has no longer the same liveliness and heartiness as before; his memory is slow and unreliable, and he cannot learn. When sixteen years old he has a convulsive epileptoid attack; the crisis is of short duration, and from this moment he is no longer the same. He has become impulsive, and in several attacks he leaves the house of his father to wander for hours straight before him, without knowing where he goes, and without having after the attack any knowledge of the miles he has walked. Once, being out in the country, he goes to excess in drink; he comes home, goes to bed, and falls asleep; in the middle of the night, without a previous epileptoid attack, he gets up in a state of complete unconsciousness, goes into the stables, and kills three horses. He goes to bed again, and sleeps till the next morning. This is the type of a blind impulse, as instantaneous as brutal. On awaking everything is forgotten, and only the blood which covers his arms and his night garment betray him. In the presence of a similar fact we had to examine the antecedents, and then we found an accident in the twelfth year, which the family scarcely remembered, and which gave us the explanation. The alcoholic excess, as of little importance, would not have sufficed for an explanation, for the occurrence had taken place in sleep; but we know how little these individuals are able to stand alcohol, and how soon rapid intoxication may produce symptoms in a defective cerebral organism. This impulsive attack, of short duration, was not the only one in the life of this patient, who, in consequence of some contrariety, suddenly committed suicide, by shooting himself in the head with a revolver in the presence of several persons.

The second type, less accentuated, is represented by patients whose intellect becomes progressively weaker, whose memory loses its activity, and who, after having for a pretty long time been able to follow their accustomed occupation, become incapable and inferior to their former selves, and astonish their friends by their physical and mental degeneration.

The physician consulted finds, again, the initial accident, and knows what has to be expected. Although in this variety the impulsive attacks are no longer the rule, there may be attacks of temporary insanity. The excitement may be mania-

cal, but contrary to true mania; it subsides rapidly, leaving the patient still more weakened. If convulsive, epileptiform attacks come on, the mental ruin may be rapid, and between these patients and the general paralytic there is with regard to symptoms no appreciable difference.

It was our intention to describe the most decided forms of these pathological conditions which belong at one and the same time to general medicine and to the science of the treatment of mental diseases, but we have also to point out less violent forms, in which a cure is possible, and in which the sub-acute consecutive symptoms at last completely subside. This is the cause of the difference of opinion which has arisen during the last few years, in consequence of the remarkable articles of Professor Charcot on hysteria consecutive to cerebral traumatism. It is well known that to the distinguished clinical Professor, the physical and mental symptoms are in the majority of cases nothing more than hysterical. Undoubtedly in a great number of cases of slight traumatism it may be so; but whenever the accident has had immediately severe consequences, that is no longer the case, and the development of the symptoms does not allow of bringing into connection with hysteria what belongs to a cerebral lesion with progressive course. We also think it well to keep the description of Lasègue, and to reserve the name "Cérébraux" for a category of patients, in whom traumatism of the skull or of the brain, or a malformation of the base of the skull, is followed, on the one hand, by physical symptoms, and, on the other hand, by mental symptoms coming on in attacks, and terminating according to the greater or less severity of the case in complete recovery, in incomplete recovery, or in progressive degeneration.

The importance of this clinical observation of Lasègue is evident. It connects mental disease directly with other diseases, and this chapter of special pathology fortunately is about to be added to that of general paralysis. We do not think we are rash in saying that it forms the necessary complement to this disorder. (See TRAUMATIC INSANITY.)

A. MOTET.

CEREBRIA (*cerebrum*, the brain). A term used by Scip. Pinel for mental derangement or any other functional disorder. (Fr. *cérébrie*; Ger. *Geistesstörung*.)

CEREBRIA ACUTA (*cerebrum*; *acutus*, severe). A synonym of Mania. (Fr. *cérébrie aigue*.)

CEREBRIA CHRONICA (*cerebrum*; *χρονικός*, relating to time). A synonym of Imbecility. (Fr. *cérébrie chronique*.)

CEREBRIA PARTIALIS (*cerebrum*, *pars*, a part). A synonym of Monomania. (Fr. *cérébrie partielle*.)

CEREBRIA SYMPATHICA (*cerebrum*; *συμπάθεια*, community of feeling). A synonym of Hypochondriasis or Hysteria.

CEREBROPATHY (*cerebrum*, the brain; *πάθος*, disease). A name given to the train of symptoms, hypochondriacal and other, accompanying overwork of the brain.

CEREBRO-PSYCHOSES (*cerebrum*, the brain; *ψυχή*, the soul or mind). A term applied to those forms of mental disturbance which result from disease of the psychic centres, such as mania and general paralysis. Also used in a generic sense of all mental affections.

CEREBROSIS (*cerebrum*, the brain). A term applied variously to inflammation and to irritation of the brain.

CEREBRUM. (See BRAIN, PHYSIOLOGY OF.)

CEREBRUM, REFLEX ACTION OF. (See BRAIN, PHYSIOLOGY OF.)

CERTIFICATES, MEDICAL. — Medical men are called upon from time to time to furnish certificates of several kinds in matters relating to insanity. Some of these are purely formal, *e.g.*, as to continued existence and continued unsoundness of mind of a patient. Some, on the other hand, demand the exercise of the greatest care and thought. Most of them have to be made by asylum officers or medical men officially in charge of certified patients, and will be found under the various headings. It is proposed to deal here only with the certificates that are given by medical men in general practice. These are certificates of insanity for the purpose of placing a patient under restraint, certificates of mental disability, certificates of sanity.

Medical Certificates of Insanity.— (Lunacy Act 1890, schedule 1, form 8, *q.v.*) A medical man when asked to give a medical certificate should approach the duty with a sense of deep responsibility, and with great caution, for even a most pronounced case may give trouble on recovery. The Act above quoted has made some changes in procedure, and in the liability of a certifier to action. It has increased the responsibility and consequent punishment for *mala fides* on the part of the certifier. On the other hand the Act declares (sec. 30):

(1) A person who before the passing of this Act has signed or carried out or done any act with a view to sign or carry

out an order purporting to be a reception order or a medical certificate that a person is of unsound mind, and a person who after the passing of this Act presents a petition for any such order, or signs or carries out or does any act with a view to sign or carry out an order purporting to be a reception order, or any report or certificate purporting to be a report or certificate under this Act, or does anything in pursuance of this Act, shall not be liable to any civil or criminal proceedings, whether on the ground of want of jurisdiction, or on any other ground, if such person has acted in good faith and with reasonable care.

(2) If any proceedings are taken against any person for signing or carrying out or doing any act with a view to sign or carry out any such order, report, or certificate, or presenting any such petition as in the last preceding subsection mentioned, or doing anything in pursuance of this Act, such proceedings may, upon summary application to the High Court of Justice or a Judge thereof, be stayed upon such terms as to costs and otherwise as the Court or Judge may think fit, if the Court or Judge is satisfied that there is no reasonable ground for alleging want of good faith or reasonable care.

It will be noted that "if there is no reasonable ground for alleging want of good faith or reasonable care," the action is stayed. This provision was put into force within a few months of the passing of the Act (*Toogood v. Wilkes*). Mr. Justice Field held that there was no such reasonable ground, and stayed the action, but he also held that the onus of proving the absence of bad faith, &c., lies on the defending medical man.

It is obvious from the above that no trouble should be spared in making a certificate correct, not only in law and in fact, but also in form. It is to be remembered also that it is far better to use every endeavour to make sure of satisfying the trained mind of a Judge on the comparatively narrow issue of care and *bona fides* than to allow any chance to arise of the matter being referred to a jury on complicated issues such as slander, trespass, and so on.

It will be convenient here to offer a few preliminary cautions which a certifier will do well to observe. Several of them apply only to certificates for the admission of private patients, in which case two medical certificates are required. But others apply equally to certificates for private and pauper patients. The

exact form of the certificate in either case is identical.

1. Inquiry should be made whether the petition or urgency order has been signed, and, if not, who is going to sign. It might possibly happen that a petition is signed by a person within the prohibited degree of family or professional relation to the certifier. A medical certificate accompanying a petition for a reception order or accompanying an urgency order, shall not be signed by the petitioner or person signing the urgency order, or by the husband or wife, father or father-in-law, mother or mother-in-law, son or son-in-law, daughter or daughter-in-law, brother or brother-in-law, sister or sister-in-law, partner or assistant of such petitioner or person.

Such an occurrence, improbable as it might be, would in all likelihood deprive the certifier, in case of action, of the restraining aid of the Judge. The following instance came within the writer's knowledge. Mrs. A. became insane, and the petition (order under the old Act) was signed by her husband. After the patient had left home, and the certificates had been signed, it was found that the petition was too old, and a fresh one was signed by B., Mrs. A.'s aunt. Then it was discovered that C., who had signed one of the certificates, was brother-in-law to B., whose certificate would in consequence be invalid. This happened previous to 1889, but it might occur again.

It is more important still to find out if the other medical certificate has been filled up and signed, and if so, by whom. If it has not, then inquiry should be made whether the patient has a usual medical attendant, and what are the reasons for his not signing it (s. 31). One of the medical certificates accompanying the petition shall, whenever practicable, be under the hand of the usual medical attendant, if any (being a medical practitioner), of the alleged lunatic. If the usual medical attendant of the alleged lunatic shall have signed such last-mentioned certificate, or if for any reason it is not practicable to obtain a certificate from such usual medical attendant, the fact or reason, as the case may be, shall be stated in writing by the petitioner to the judge, magistrate, or justice to whom the petition is presented, and such statement shall be deemed to be part of the petition.

The same caution should be exercised if the other certificate has been signed by a medical man other than the usual medical attendant, as it will be needful to see that the signer of the first certificate does

not come within the prohibited relationship to the signer of the second (s. 32, sub-s. 2).

Neither of the persons signing the medical certificates in support of a petition for a reception order, shall be the father or father-in-law, mother or mother-in-law, son or son-in-law, daughter or daughter-in-law, brother or brother-in-law, sister or sister-in-law, or the partner or assistant, of the other of them.

It is curious that there is no prohibition against a husband and his wife (both being registered practitioners) signing the two certificates.

It is perhaps hardly necessary to say that none but a person on the medical register can give a valid certificate, and that heavy penalties attach to the giving of a certificate by an unregistered person. It is also necessary that the certifier should be in active practice. There is no prohibition against the superintendent of one asylum certifying a patient for another asylum.

2. The two certificates must now, under the new Act of 1890, be given on separate sheets of paper. The presumed object for this alteration from the old practice is to lessen the chance of the second certifier seeing the first certificate, though there is no direct order that he should not read it over. But undoubtedly the vexed question of consultation between the two medical men lies at the root of this provision. The words "that I personally examined *separately from any other practitioner*" have occasionally been construed so as to extend their meaning far beyond the actual examination of the patient, on which the certificate is founded. When the new Act was first introduced by Lord Selborne, it was provided that nothing was to prevent consultation at any time or place before the signing of the certificate. But this provision was actually withdrawn after debate, from the absurd notion that certifiers ought to avoid anything like consultation.

3. Certificates under the old Acts were valid, even if they were entirely in writing. A question, however, arises under the new Act, each certificate now containing a paragraph (5), "I give this certificate, having first read the section of the Act of Parliament *printed below*," the extract being (s. 317, sub-s. 4). In view of increasing stringency and technicality, it might possibly be held that certificates may only be on printed forms. At all events till this point is settled it will be well to avoid holograph certificates, though in cases of urgency the absence of printed forms may cause prejudicial delay.

4. It should be borne in mind that the facts stated in a certificate must be founded only on the results of an examination of the patient on the day specified in the body of the certificate. Though a medical man may have attended a patient for years, and have known of his insanity for a long time past, he must not make use of that knowledge as the chief and operative basis of his certificate. What he writes against the patient's sanity, he must have observed on the particular day referred to. In England and Ireland the certificate may be dated on a subsequent day as long as seven clear days do not intervene, while in Scotland the certificate must be signed and dated on the day of examination. In any case the certificate is only valid for seven clear days after the date of examination. In practice "not more than seven clear days" does not include the day of examination and the day of admission. Therefore a patient examined on the first of the month can be admitted on the ninth.

5. In filling up the certificate it is most important that the notes printed at the side of the form should be carefully read and followed. There is no choice in the matter; if omissions are made in the slightest particulars required by the Act, the certificate will be returned for amendment by the Commissioners in Lunacy, considerable trouble being thus caused to all concerned. In 100 consecutive cases, involving 200 certificates examined by the writer, no less than 64 were returned for alteration or addition of a comparatively trivial nature. It is to be remembered that all these requirements, slight as they may appear, are prescribed on really important grounds, such as identification of person and place, and so on. A certificate is not a complete document unless accurately fulfilling the requirements of the law. Fourteen days are allowed for amendment, and if the amendments are made on the demand of, and to the satisfaction of, the Commissioners in Lunacy, and with the consent of the judge or magistrate who signs the order, the document then is as good as if it had been perfect in the first instance (s. 34, sub-s. 3). But if the amendments are not made within fourteen days (which might occur if the certifier had left home), the Commissioners may order the discharge of the patient, and it might be a question whether the patient would not have good ground for setting the law in motion, and thus cause needless worry, even though in the end he might not be successful. There is one direction in which most mistakes occur, and it is worth emphasising.

It is absolutely necessary to give the names and christian names with the addresses and description of those persons who communicate to the certifier those facts which he relates in the certificate. Considerations for his own safety should prompt him to record all these items of information, concerning a person on whose evidence he may be only too glad to rely on some future day.

6. In writing down the facts observed, everything should be put in clear, concise and categorical form. Full stops should divide various heads of information. Involved sentences should be avoided. Slipshod, ungrammatical compositions not only lead to confusion, but evidently suggest hurry and want of care, which might, when combined with other matters, turn the scale in the mind of a Judge, and then lead him to withhold his power to stay an action. The following certificate came before the writer, and is a sample of what is to be avoided:

"He is violent to his wife, having been with him the whole of to-day and part of yesterday, I could not keep him from drink, being violent to obtain it."

7. A certifier will do well to invariably keep a copy of the facts stated by him in the certificate, together with notes and amplifications which would on lapse of time help him to defend his certificate. On being called upon to certify a patient about whom he knows little or nothing, the certifier should ask to see either the nearest possible relative or some intimate friend. This should be, not only for the purpose of getting every possible bit of information about the patient, but to assure himself of the *bona fides* of the whole matter. Though conspiracies to put sane persons into asylums are almost matters of history, yet such things have been alleged, and no medical man should take *bona fides* for granted. It is well to ascertain whether alcohol has been indulged in by the patient. The history of any former, as well as of the immediate attack, should be obtained, and it is well to ask plainly for the exact reasons and indications for the proposed removal to the asylum.

There is often considerable difficulty in gaining access to a patient, without making things worse for those who have charge of him. A medical man should remember that, though his present duty is to obtain, if they are obtainable, evidences of insanity, yet this must be done *secundum artem*, and with a due consideration of the difficulties of the position. Nevertheless, in the great majority of cases, it will be advisable to go in as a doctor. It

is not necessary to blurt out the fact that the visit is paid for the purpose of certifying, but one should not be afraid to say so if asked. Deception, though it may gain temporary advantages, will not, when it is found out, tend to make the subsequent treatment easy or pleasant. A judicious but firm expression of professional opinion will, very generally, do something towards persuading the patient of the necessity for his treatment away from home. There are, however, cases where deception must be practised, but when this is found to be necessary, the certifier, having made full inquiries, should settle for himself the nature and the extent of the pretences proposed to be used. If any one else concocts a plan mistakes are sure to arise. Possibility of personal violence in some cases should be kept in mind, and if it is known that the patient has dangerous weapons about him, a medical man would be justified in refusing to expose himself to risk, unless the friends arrange to take steps to obviate it.

Assuming that difficulties of access, if any, have been surmounted, the method of examination has next to be considered. Of course, in the majority of cases, nothing can be simpler than to collect these facts, and to write them down just as they are observed, but unless a certain method is followed, a very unsatisfactory document may result. Necessary as method is in these patent cases, it is doubly so in those where, although there may be no doubt in the certifier's mind as to the patient's insanity on the whole, there is a difficulty in setting down facts in such a manner that they by themselves will carry conviction to the mind of another person. The best rule is to take note, first of the general and special appearance of the patient, next of his acts, and lastly of the result of conversation with him. These can again all be classified in accordance with the broad features of mental disease. A committee of the Medico-Psychological Association some years ago drew up and recommended for use in asylums a scheme of observation of the clinical facts in a case when admitted, and this would be equally applicable to an insane person just before admission. All mental conditions can be referred to one of four classes, excitement, depression, exaltation, enfeeblement.

Excitement is shown by wildness of appearance and eye, dishevelled hair, restlessness, both of the body as a whole, or of the members, rapidity and jerkiness of action, mischievousness and destructiveness, muttering or shouting, rapid

speech, rapid transition of thought from subject to subject, incoherence, and so on.

Depression is not by any means the reverse of the above-described condition, in fact very many cases show not only an alternation but a co-existence of the two states, which then betokens a troublesome and anxious illness. Pure depression is shown by the dejected and melancholy appearance, the hanging head and nerveless state of the limbs, deep sighing, moaning and muttering, slowness, labouring and mournfulness of speech, and lugubriousness of conversation.

Exaltation is the true antithesis to depression. The two states may alternate, but never co-exist. It is shown by the erect proud bearing of the patient, by decoration of his person with all kinds of ornaments, good or worthless, by his happy and eager look, and by his hilarity, readiness to talk to any one and every one, by impulses and intentions to do the most improbable things, and so on. A person labouring under the first stage of a typical attack of general paralysis of the insane, offers a good example of this condition.

Enfeeblement may co-exist with any of the preceding, and as a rule is found with all of them more or less. It may exist by itself as in total dementia. Its evidences are inattention to personal appearance, want of expression in the face amounting even to total blankness, forgetfulness of the most natural impulses, resulting in dirtiness of person, dribbling at the mouth, evacuation of the bowels, &c., without any regard to time or place, by heedlessness of pain, or injury, and by the greater or less loss of reasoning power, perception and memory.

Delusions are very generally co-existent with each of the above broad divisions, and should be sought for with the other evidences. They are, however, by no means necessary to insanity, and he who hopes to be able to build his certificate on one, may often be sadly disappointed. But they certainly are the commonest, most convincing and tangible evidences of insanity. Practically speaking, a delusion is the conviction of an insane person which, if expressed by a sane man to another, would justify the latter in giving him the lie. It is with delusions as it is with lies, some bear their characters on their face, others on the contrary are so like the truth that it is hard to say where fact ends and fiction begins, and again a statement may appear to be so impossible as to suggest delusion, and yet be true. Therefore a medical man must be cautious in stating anything to be a delusion where

there is the least possibility of its not being so. It is always better, if possible, to demonstrate the falsity of a delusion, and it is always necessary not to give only the substance (*e.g.*, he fancies that he has no money), but to state plainly that in the opinion of the certifier the fact mentioned is a delusion. It follows, therefore, that before the certifier can say that anything is a delusion he must have reliable ground to go on.

Hallucinations, especially those of hearing, are very important evidences, and when suspected should be most diligently sought for, as any one liable to them is a bad subject. Patients may betray themselves by suddenly stopping in their conversation with others, assume a listening attitude and go so far as to whisper or even shout an answer to the unseen speaker. The "voices," as they are called both by doctors and patients, hardly ever say anything pleasant to their victims, and often goad them to murder or suicide, so that the least clue in this direction should be followed up and recorded, not only to strengthen the certificate, but to give timely warning to those who may take charge of the patient.

A person may have very strong delusions or hallucinations and yet have sufficient self-control to keep them to himself. These cases often give the certifier great trouble. If, after trying all other ways, he finds the patient will not commit himself, a sudden home question will often accomplish the purpose. An inquiry as to whether his friends have treated him properly, very often sets the patient off, as it is a matter of constant observation that these impracticable patients nourish ill-feeling to relatives and former friends.

Incoherence is a favourite, common and strong evidence of insanity, but it is not scientific to place it as a fact unless properly qualified or described. It is manifest that it makes all the difference whether there is incoherence between word and word, between phrase and phrase, or between sentence and sentence. What would be incoherence in an educated man would not necessarily be so in his inferior, and it should be remembered that people who have risen to good position may, under slight excitement, return to the diction of their earlier days. On the other hand, a patient may persistently refuse to open his mouth. It is right then to tell him who the certifier is, and that he has come to inquire into his state of mind. Silence continued after this has been done, would form evidence of considerable weight.

Loss of Memory is a point that should be inquired into. If sudden, it is always a strongly suspicious fact, but it generally advances *pari passu* with the disease, and is often one of the first departures from sanity. It will very constantly be found that the patient's memory is capital for things that occurred years ago, but of no use to him for recording recent events. In placing a value on this symptom the age of the patient should be taken into account.

The foregoing facts, if observed in sufficient quantity, will justify an opinion as to insanity, but it by no means follows that in all cases a man is sufficiently insane to be placed in an asylum or under restraint, and it will be remembered that this is a very essential element in a certificate. It will be well therefore, if possible, to state one or more reasons for the necessity for residence under care. There are two principle reasons for such necessity—the likelihood of harm arising to the patient by his being left his own master, or the possibility of it occurring to others.

A man may harm himself by committing or attempting to commit suicide, by mutilating himself, by starving himself, by injuring himself with drugs, or he may come to damage by sheer apathetical neglect of food, clothing, warmth, and other necessaries.

He may do damage to others, by murderous assault, or mischievous maiming, by annoying them by shouting, by indecent acts, by setting fire to his or their houses, by damaging their property; he may wear his friends out by abuse, moaning, threatening; he may injure those who have a claim on him by spending his money or ruining his property; he may get into the hands of the police for raising a disturbance in a street or church, by furious driving, and so on.

There is a third reason for a person being sent to an asylum—the probability of the treatment there being the best, and it may be the only chance of his recovery. The lunacy laws clearly contemplate the possibility of this third reason, inasmuch as the "statement" requires particulars to be given—"whether suicidal" "whether dangerous to others and in what way"—as part of the history only of the case. But while there is the least chance that a judge may hold (as has occurred within recent years) that the common law, which requires a person to be dangerous to himself or others, before he can be placed under restraint, overrides the statute laws of lunacy, it will be wise for a certifier to be careful not to rely on this necessity alone.

Urgency Certificates.—To meet the delay which is caused by the necessity of applying to and satisfying a judge, magistrate or justice, provision is made for "forthwith" placing under restraint, cases in which such delay is dangerous either to the patient or others. An order (form 4 of the Act) is signed by a relative of the patient, or some other person if no relative can be got to sign; and this order, with an ordinary medical certificate (see above) amplified by a statement on the part of the certifier, will be sufficient authority for the removal to the place of detention. The statement is simple in form, and requires reasons for such accelerated procedure, over and above the reasons given in the ordinary certificate. Strong suicidal attempts or desires, refusal of food to a dangerous point, violence to others, liability to self-injury from violence, shouting to the annoyance of the public, and so forth, would be good reasons, though in particular cases there might be others equally cogent. It is to be carefully noted that the "statement" or "certificate" of the medical man only holds good for not more than two clear days from the examination, and that such certificate must state the date of examination. A certifier will therefore bear in mind he must not sign such certificate beyond that time after examination; indeed, it is better to sign it immediately after the examination is made. It should be added that an urgency medical certificate, and one of the medical certificates in support of a petition, may be signed by one and the same practitioner. Medical men must bear in mind that when they sign either of the above certificates, they are liable to be summoned to give evidence before the judge, magistrate or justice to whom the petition is presented (s. 6, sub-s. 3).

Certificate of Disability of Persons entitled to Payments from a Public Department (schedule 1, form 17).—It may happen that in the case of a person of unsound mind who does not reside in an asylum or under certificated control, a medical man may be called upon to give such a certificate. He has to certify that by reason of mental disability this person is unable to manage his or his own affairs. It will be noted that the ground for this certificate varies from that of the ordinary certificate, in that while both recognise unsoundness of mind, fitness for detention in the latter is replaced in the former by want of capacity to manage business. Therefore after the insanity is proved it will be necessary, if there is any power of conversation on the part of the patient, to

test his knowledge of arithmetic, the value of money, the right and proper disposition of it and so forth. In most cases the insanity will in itself demonstrate the want of capacity, but cases may occur in which considerable care will be required.

Certificate of Sanity.—Medical men are sometimes, though rarely, called upon to certify that a certain person is of sound mind. This may happen under two or three different sets of circumstances. It may be that such certificate is asked for in order to afford presumptive evidence of capacity to make a will or sign some important document, or to give a person who has been under certificates or has been confessedly insane, the *rentrée* into sane life and its duties. When there is unanimity among those most concerned, there is but little trouble, and when there is some particular purpose in view, the certifier would naturally satisfy himself of the capacity *ad hoc*. But when there is evidence of difference of opinion among the friends, such as is probably contemplated in the new Act (s. 49), (which allows the commissioners, on the application of any one, to authorise two medical men to examine a patient under control, with a view to his discharge) then great caution indeed is required. Such persons probably present many evidences of sanity, seeing that the difference of opinion most likely arises on the question of the preponderance of sanity or insanity. Such a patient probably knows where his weak points are, and it has even been known that a patient has been successfully schooled to suppress his delusions, with a view to passing the ordeal. It has been recorded (Clouston's "Mental Diseases") that a patient has left the asylum insane, and returned with a certificate of sanity from an outside medical man.

The method of examination suggested above for the certification of insanity will stand good for satisfying oneself as to a man's sanity, but it will be at best only a negative process. It will require much cautious inquiry from those who know the history of the case, and probably repeated visits, before a positive and general opinion of sanity is given; and such a task may well be refused by any one who has not had very great experience. But certificates of partial sanity for any set purpose may be more readily given, though they should be strictly limited to that purpose. There is no set form for such certificates. What has been said before as to keeping copies of the certificate, and full notes of the interviews with the patient, applies here with even greater force.

H. HAYES NEWINGTON.

CHÆRAPHROSYNE (*χαίρω*, I rejoice; *ἀποσύνη*, senselessness). An old term for mental derangement with cheerfulness of disposition. (Fr. *chaeraphrosyne*; Ger. *Der lustige Wahnsinn*.)

CHÆROMANIA, or **CHAIROMANIA** (*χαίρω*, I rejoice; *μανία*, madness). A form of mania in which the patient is very cheerful.

CHAIR, WHIRLING.—A chair so arranged that it could be revolved with great rapidity. It was formerly used in cases of violent mania both as a curative agent and as a means of temporarily quieting the patient, the chair being whirled round with a rapidity proportionate to the degree of violence or acuteness of the maniacal systems.

CHANCERY LUNATICS.—**Definition.**—This term is ordinarily applied to those cases of lunacy, the subjects of inquisitions under commissions of lunacy, either with or without a jury, and does not include those cases, perhaps but few in number, where the person concerned is a party engaged, or interested, in Chancery proceedings, and where the Court of Chancery may have directed the application of certain small funds for his benefit, to avoid the heavy expense consequent upon a special inquiry by commission or otherwise into his state of mind.

History.—The Crown as *Parens Patriae* has by virtue of its prerogative the care and custody of the persons and estates of those of non-sane memory, and who from want of understanding are incapable of taking care of themselves. This royal prerogative seems to have existed anterior to the statute of **17 Edw. 2.** (1324) called *perogativâ regis*. It is, however, a right which is never exercised but upon a previous office or inquisition found. For the purpose of its exercise the Crown by sign manual delegates its authority to its own great officer, not necessarily, but usually, the Lord High Chancellor; and now, since the re-arrangement of the Chancery jurisdiction, to the Lords Justices and the Judges of Appeal concurrently, and separately, with the Lord Chancellor.

The care and treatment of lunatics, or persons mentally affected, was the subject of much consideration and investigation during the period from 1827 to 1833. The late Earl of Shaftesbury, among others, powerfully directed attention to the question relating to the treatment of lunatics generally, while the late Lord Chancellors Brougham and Lyndhurst gave special attention to the cases entrusted to their care by virtue of the royal sign manual above referred to. These latter efforts resulted in the passing, in July 1833, of

the **Act 3 & 4 Wm. IV. cap. 36**, intituled: "An Act to diminish the Inconvenience and Expense of Commissions in the nature of *Writs de Lunatico Inquirendo*; and to provide for the better Care and Treatment of Idiots, Lunatics, and Persons of unsound mind, found such by Inquisition."

This Act empowered the Lord Chancellor, &c., to cause any Commission in the nature of a writ *de lunatico inquirendo* to be directed or addressed to any one or more person or persons who should make inquisition thereon, and return the same into the High Court of Chancery, and who for that purpose should have the same powers theretofore possessed by the three or more commissioners in such commissions named.

The Act also provided that proper and fit persons should be appointed to superintend, and from time to time report to the Lord Chancellor, &c., the care and treatment and state of every such idiot, lunatic, and person of unsound mind, two of whom should be physicians and one a barrister of not less than five years' standing, to be visitors during pleasure for superintending, inspecting, and reporting upon the care and treatment of all such persons, and to make all necessary orders and regulations as to the duties of such visitors as the Lord Chancellor, &c., should think fit. The Act further provided that each such idiot, lunatic, or person of unsound mind should be visited at the least once in each year by one of such medical visitors, or oftener if the Lord Chancellor should so direct.

For the purpose of carrying this Act into effect a Board of three visitors was accordingly constituted, and consisted of two physicians and a barrister, as above mentioned.

At the period of the passing of this Act (July 1833) it was doubtful what number of Chancery lunatics were then in existence, no exact record of them having been previously kept; but the inquiries as to them which had necessarily to be made to enable the Board to fulfil their duties, led, it is believed, to the discovery of about 400 cases then coming under the operation of the Act.

In order to meet the expenses consequent upon the execution of the statute a small percentage (one per cent. upon the clear annual income of each lunatic) was, by general order, made under the Act, directed to be paid by the committees (the members of the family of each lunatic so-called, and the persons appointed by the Court to take charge of the lunatics and

their estates) or other persons in receipt of each lunatic's income.

This Act of the **3rd & 4th Wm. IV., c. 36**, continued in operation till the year 1842, when on the 5th of August of that year a further Act was passed, the **5th & 6th Vict., c. 84**, intituled "An Act to alter and amend the Practice and Course of proceeding under Commissions in the nature of *Writs de Lunatico Inquirendo*."

By this Act power was given to the Lord Chancellor to appoint two fit persons, serjeants or barristers-at-law, of not less than ten years' standing at the bar to be called "the Commissioners in Lunacy," to whom or one of them, in the then future, all commissions in the nature of writs *de lunatico inquirendo* should be directed. These commissioners were to hold their offices during good behaviour, and were jointly and severally to perform all the duties and authorities then had by commissioners named in commissions in the nature of writs *de lunatico inquirendo*. Powers were also given to the Lord Chancellor to direct these commissioners to perform all the duties then usually referred to the Masters in Chancery in relation to lunatics and their affairs; and the commissioners so appointed were also to be *ex officio* visitors of lunatics.

Certain other powers were conferred upon the Lord Chancellor for the purpose of carrying this Act more fully into effect, by the appointment of proper officers and clerks, and providing suitable offices in which to conduct the business thus devolving upon the commissioners and their officers.

These commissioners were also, as such, *ex officio* members of the Board of Visitors of Lunatics.

This Act remained in operation till the year 1845, when, in consequence of the serious expense still found to be incurred in the proceedings by inquisition, it was deemed desirable to make some more suitable provision for certain cases of small estates; and accordingly in the General Lunacy Act, the **Act 8 & 9 Vict. c. 100**, passed the 4th of August in that year, intituled "An Act for the regulation of the care and treatment of Lunatics," (and described by some as "Magna Charta of the insane poor,") contained provisions (clauses 95 and several following ones—but since repealed) enabling the Lord Chancellor to direct the Masters in Lunacy to report as to the lunacy in certain cases, and to appoint guardians of the person and receivers of the estate; and to direct the application of the income of such lunatics.

By this Act permanent Commissioners

in Lunacy with a permanent secretary also were appointed; and by section 2 of the Act it was enacted that "The Commissioners in Lunacy" above mentioned should thenceforth be called "The Masters in Lunacy" and should take the same rank and precedence as the masters in ordinary of the High Court of Chancery.

The various provisions of the Acts of 1842 and 1845 in relation to Chancery lunatics continued in force until the year 1853, when on the 15th of August in that year a further Act, **16 & 17 Vict. c. 70**, intituled "An Act for the Regulation of Proceedings under Commissions of Lunacy and the Consolidation and Amendment of the Acts respecting Lunatics so found by Inquisition, and their Estates," was passed. This Act was, to a great extent, a repealing and consolidating statute, and declared that there should be two masters in lunacy who should also be visitors of lunatics jointly with the visitors for the time being, and should, in each case of alleged lunacy, act under a general commission in lieu of the special commission then issued in each case. The Act contained also various provisions relating to the property and estates of lunatics, and the control and management thereof, as well as the requisite provisions for the care and visiting of the lunatics so found by inquisition. It also provided for the performance by the masters and visitors of their respective duties, and indicated the mode of obtaining a supersedeas, or a temporary suspension of the proceedings in such cases of lunacy.

Several other Acts were subsequently passed amending or explaining certain provisions in the Act of 1853. The chief of which was the Act of **25 & 26 Vict. c. 86** passed in August 1862 intituled "An Act to amend the Law relating to Commissions of Lunacy, and the Proceedings under the same, and to provide more effectually for the Visiting of Lunatics, and for other purposes."

This Act limited the time within which evidence should be adduced as to the insanity of any alleged lunatic, the subject of inquiry by commission, to two years antecedent to the time of the inquiry (which provision is continued by the new Act, as below stated), and provided that the Lord Chancellor should be enabled to direct an issue to be tried in one of Her Majesty's superior courts of Common Law at Westminster as to the lunacy of the alleged lunatic, instead of the ordinary inquiry by a jury under a commission. It also provided that no traverse of the trial of such an issue should

be allowed, but that within three months an order might, if the Lord Chancellor should think fit, be made for a new trial of any such issue. The Act also contained further provisions in relation to a supersedeas of the proceedings, and as to the payment of the costs by any of the parties concerned in the inquiry.

Further provision was also made as to cases of small amounts of property—that is to say where the corpus did not exceed £1000 (net value) or the income did not exceed £50 per annum.

Various other provisions were made as to the management of lunatics' estates, and the dealings with them, and also for enforcing the attendance of witnesses upon the subsequent inquiries before the masters.

By section 20 of the Act it was provided that each lunatic should be personally visited and seen by one of the visitors four times at least in every year, except that those resident in asylums, &c., should not necessarily be visited more than once in the year, unless the Lord Chancellor should otherwise direct.

This latter provision as to visiting the lunatics was, by a subsequent Act—that of the **45 & 46 of Vict. c. 82**, passed 18th of August 1882, intituled "An Act for Amending the Lunacy Regulation Acts"—altered, by directing that such lunatics should be visited twice instead of four times in each year, provided that every lunatic resident in a private house should, during the two years next following the inquisition, be so visited at least four times in every year.*

The several enactments and arrangements above referred to remained in operation till May 1, 1890, when, by the General Lunacy Act of the **53 Vict. c. 5**, passed on March 29, 1890, intituled "An Act to Consolidate certain of the Enactments respecting Lunatics," the several Acts above mentioned of the **16 & 17 Vict. c. 70**, the **25 & 26 Vict. c. 86**, and **45 & 46 Vict. c. 82**, and other Acts, were wholly repealed, and the various provisions which they contained in relation to Chancery lunatics were embodied and consolidated in such new Act, now constituting the law appertaining to these cases. Section 338 empowered the Lord Chancellor "to make rules in lunacy for carrying this or any other Act relating to lunacy into effect, and also for regulating costs in relation thereto." Rules for this purpose were accordingly made, and came into operation on August 1, 1890.

* This Act directed also that the above-mentioned £1000 should be read as £2000, and the £50 as £100.

This Consolidation Act and the rules so made for carrying it into effect, prescribe the duties and powers of the Judge and Masters in Lunacy, and the duties also of the Board of Visitors in relation to the cases by inquisition, which are at present estimated at 1200 in number, exclusive of the various other cases still existing under the above-mentioned Acts of 1845, 1862, and 1882. Of these latter cases little is known after the first application to the Court concerning them, and they are not visited like the other cases by inquisition, nor are any annual or other accounts of receipts and payments in respect of their estates, except in a very few special cases, presented to the masters. Hence the possibility of a recurrence to the state of things which, to a considerable extent, prevailed with respect to the so-called Chancery lunatics anterior to the passing of the Act of 1842 above referred to.

Mode of Procedure.—For the purpose of obtaining an inquisition in lunacy above mentioned, a petition is presented to the Lord Chancellor usually by one or more of the next of kin, or other member of the family of the supposed lunatic.

This petition is supported by affidavits generally of two medical men, physicians, or surgeons, and of members of the family or other persons to whom the alleged lunatic is known, explaining the particulars and nature of the unsoundness of mind, and the conduct and conversation by which it is shown.

The medical affidavits in support of a petition for an inquiry in lunacy are required to be not merely general, but clear and distinct statements, free from any bias, or prejudice, or room for doubt, as to the unsoundness of mind. They should show, in fact, the exact nature of the alleged unsoundness; and the delusions (if such exist), and the conduct, conversation, and circumstances leading to the just conclusion that the alleged lunatic is a proper subject for the inquiry and the protection of the Court, being indeed, by reason of his mental condition, wholly unable to protect and manage either himself or his affairs.

The non-medical affidavits indicate the nature and amount of the alleged lunatic's property, and who are his kindred or nearest relations. These papers are lodged in the office of the Masters in Lunacy who now act as registrars in lunacy, and notice of the proceedings is served upon the alleged lunatic, and when the order for the inquiry is made it puts the above-mentioned general commission into operation.

One of the masters thereupon fixes the

time and place for holding the inquiry, and at the time thus appointed the master sees and examines the alleged lunatic, and takes the medical and other evidence in support of the inquiry, and if satisfied therewith he certifies the result in the form of an inquisition above referred to. It then becomes the duty of the master to inquire more fully into the nature and amount of the lunatic's fortune and income and into his family and kindred, and especially, having regard to such fortune and income, and the lunatic's capacity for enjoyment, what is a proper sum to be allowed for his maintenance and support, and the maintenance and support also of his immediate family. In making these arrangements a suitable and detailed scheme is considered and arranged, which, having regard to the orders of the Court, is furnished to the Board of Visitors to enable them the better to discharge their duty on subsequently visiting the lunatic, and superintending his care and treatment.

The masters have also to decide upon and approve of (subject to the order of the Court) a suitable and proper person or persons to be committee or committees both of the person and estate of the lunatic. Those of the person are required to visit the lunatic at least once in every three months, or at such other times as may be necessary, and in the case of the estate the committee has to give adequate security by himself and two sureties for duly accounting for the lunatic's property. Relations of the lunatic are, as a rule, preferred to strangers as committees; but the object is to appoint the person or persons who may be expected to make the best provision for the care and comfort of the lunatic and the protection of his property. The Court considers nothing but the situation of the lunatic himself, always looking to the probability of his recovery, and never regarding the interest of the next-of-kin; nor does the Court unnecessarily alter the lunatic's property, but, on the contrary, takes care for his sake that if he recovers he shall find his estate as nearly as possible in the same condition as he left it, applying the property in the meantime in such a manner as the Court thinks it would have been wise and prudent in the lunatic himself to apply it in case he had been capable.

In cases held before juries (twelve jurors being required to concur in a verdict) the same proceedings have to be taken after the inquisition found, with reference to the lunatic's fortune, income, and maintenance and kindred, and the appointment also of

committees, as in the cases held without juries.

Section 98 of the Act (1) directs (as previously) that the inquisition shall be confined to the question whether or not the alleged lunatic is at the time of the inquisition of unsound mind, and incapable of managing himself or his affairs, and no evidence as to anything done or said by him, or as to his demeanour or state of mind at any time, being more than two years before the time of the inquisition, shall be receivable in proof of insanity, or on the trial of any traverse of an inquisition unless the person executing the inquisition otherwise directs; and (2) if upon such inquisition it appears that the alleged lunatic is of unsound mind, so as to be incapable of managing his affairs, but that he is capable of managing himself, and is not dangerous to himself or to others, it may be so specially found and certified.

By sub-section 3 of clause 108 it is enacted that "where upon the inquisition it is specially found or certified that the person to whom the inquisition relates is of unsound mind so as to be incapable of managing his affairs, but that he is capable of managing himself, and is not dangerous to himself or to others, the Judge in Lunacy may make such orders as he thinks fit for the commitment of the estate of the lunatic and its management, including all proper provisions for the maintenance of the lunatic, but it shall not be necessary, unless in the discretion of the Judge it appears proper to do so, to make any order as to the custody or commitment of the person of the lunatic."

And sub-section 4 directs that "any order under this section may be made, notwithstanding proceedings are pending for a traverse or new trial, and any person acting upon an order so made shall be indemnified as effectually as if there had been no right of traverse or new trial."

Section 106 provides that the Judge in Lunacy, on being satisfied by the evidence therein stated "that a lunatic so found by inquisition is cured or capable of managing himself, and not dangerous to himself or others, though incapable of managing his affairs, may, if he thinks it desirable that the ordinary proceedings for a supersedeas should not be insisted on, by order supersede the inquisition, so far as the same finds that the lunatic is incapable of managing himself, and rescind or vary any order for the commitment of the person of the lunatic;" and sub-section 2 of this clause directs that an order under this section may be made on such terms

and conditions as the Judge thinks fit, notice of any such order being given to the committee of the person, and also to the person under whose care the lunatic is (sub-s. 3).

And section 115 directs that under the circumstances therein provided for, the order for the commitment of the person of the lunatic shall determine, but nothing therein contained shall affect the commitment of the estate.

Reports to Board.—In all cases by inquisition the committees of the person and the medical attendants of each lunatic have to make half-yearly reports (in January and July of each year) to the Board of Visitors, as to the mental and bodily state of the lunatic, and on every occasion of a change of residence to furnish the visitors with immediate information so as to enable them at any moment to fulfil their duty of visiting him.

Several important provisions have been introduced into the new Act, among which the Masters in Lunacy are enabled by order (s. 12) to authorise the reception of a lunatic, found such by inquisition, into an asylum, &c., where no committee has, at the particular moment, been appointed; and provision is also made (s. 130) for obtaining funds for the temporary maintenance of a lunatic pending the appointment of committees.

In relation to the property of lunatics detained as such, section 50 (1) of the Act directs that where any person is so detained and the commissioners represent to the Lord Chancellor that it is desirable that the extent and nature of his property, and its application, should be ascertained, the Lord Chancellor may, if he think fit, through the masters, require that the person upon whose petition the reception order under which the lunatic is detained was made, or other the person paying for the care and maintenance of the lunatic or having the management of his property, shall transmit to the Lord Chancellor a statement in writing to the best of his knowledge of the particulars of the property of the lunatic and of its application.

(2) "The commissioners may also, whenever they think it expedient, make inquiries as to the property of any person detained as a lunatic."

By sub-section 4 of clause 39 of the Act, the local visitors of lunatics in cases of private patients having reported on such cases to the Lunacy Commissioners, they are to make further inquiries to satisfy themselves whether the patient is properly detained as a lunatic, or whether he

ought to be discharged, or whether the case ought to be reported to the Lord Chancellor with a view to an inquisition.

Suggestions.—Having regard to the serious liabilities incurred by many of the patients anterior to the proceedings for their personal care and protection, and the protection also of their estates, it would often seem to be important that no hostile creditor of a lunatic should for his own exclusive benefit have the power, after the inquisition found, of enforcing at a considerably additional expense, a claim against the lunatic or his estate, to the prejudice of the general body of his creditors, but that provision should be made (as in bankruptcy) for a stay of all legal proceedings by the finding of the lunacy, and authorising the Lord Chancellor to deal with the various claims against the lunatic and his estate as right and justice towards all concerned might seem to require.

Committees of the estate only (except in a few cases) are now required to account for their receipts and expenditure, but having regard to the necessary protection and well-being of the lunatic it may be doubtful whether the committees of the person also should not be required duly to account for their expenditure on the lunatic's behalf, receiving themselves, if deemed needful, such a recompense for their care and trouble as the income and estate of the lunatic might be able to afford, and the Court might think it right to sanction.

The principle involved in section 130 above mentioned, would seem to be capable of extension—namely, in those cases where, from the circumstance of the lunatic's funds being placed in court to the credit of the particular matter, an order of the Court, instead of the certificate of a master, is now necessary to operate upon them, even to the smallest extent, thus occasioning an outlay in the shape of legal costs, which would probably exceed the amount desired to provide for the additional comfort of the lunatic. Had the masters power by certificate thus to operate upon these funds in court, of course to a limited extent only, it is conceived that a considerable benefit would, especially in the smaller cases, accrue to the lunatic and his estate.

By section 132 of the Act, provision is made in certain cases where an order is obtained for the reception of a lunatic whose property does not exceed £200 in value, and there is no relative or friend of the lunatic willing to undertake the management of it, to authorise the clerk of the guardians of the particular locality,

or some other person, to deal with and apply the property for the lunatic's benefit. It is conceived, however, that there may be many other cases not coming within this immediate provision, where alleged lunatics are entitled to sums (legacies and moneys) of a much less amount than £200, and there is a want of legal power and authority to deal with them. The question hence arises whether there might not be vested somewhere or other the power of dealing, by a simple and inexpensive process, with cases of this character, and of applying the lunatics' small funds for their maintenance and benefit, and of thus relieving trustees or other persons from the responsibility of exercising their own discretion in dealing with such limited funds.

In cases such as these, why might not the present Masters in Lunacy, by some easy and ready method, be enabled by a certificate or order under their hands, to authorise the persons holding such small funds to apply them in the maintenance or otherwise for the benefit of the particular lunatic, upon satisfactory evidence of incapacity and the propriety of the proposed application?

Sections 85 to 89 contain provisions for retaking lunatics making their escape from the custody in which they were previously placed. Power is also given by section 337 to amalgamate the lunacy departments; and section 338 authorises the Lord Chancellor to make rules and regulations for carrying the Lunacy Acts into effect.

Section 131 also contains provisions relating to certain cases of a small amount of property in England, Scotland, and Ireland, but otherwise the various Acts of Parliament relating to English lunatics do not apply to Ireland or Scotland (s. 2) unless specially referred to, each of these jurisdictions having its own Acts for the regulation of the care and treatment of its lunatics, and the management of their estates.

Besides the various cases by inquisition and those of a small amount of property above referred to, it should be particularly noticed that section 116 of the Act has introduced several other classes of persons whose care and treatment have to be provided for, namely—by clause (c) "Every person lawfully detained as a lunatic though not so found by inquisition;" clause (d) "Every person not so detained and not found a lunatic by inquisition with regard to whom it is proved to the satisfaction of the Judge in Lunacy that such person is, through mental infirmity, arising from disease or age, incapable of

managing his affairs ;" clause (f) "Every person with regard to whom the Judge is satisfied by affidavit or otherwise that such person is or has been a criminal lunatic, and continues to be insane and in confinement."

And sub-section (2) directs that—"In the case of any of the above-mentioned persons not being lunatics so found by inquisition, such of the powers of this Act as are made exercisable by the committee of the estate under order of the Judge, shall be exercised by such person in such manner, and with or without security, as the Judge may direct, and any such order may confer upon the person therein named authority to do any specified act, or exercise any specified power, or may confer a general authority to exercise on behalf of the lunatic until further order, all or any of such powers without further application to the Judge."

Sub-section (3) directs that "every person appointed to do any such act or exercise any such power shall be subject to the jurisdiction and authority of the Judge as if such person were the committee of the estate of a lunatic so found by inquisition."

Sub-section (4) also provides that "the powers of this Act relating to management and administration shall be exercisable in the discretion of the Judge for the maintenance or benefit of the lunatic, or of him and his family, or where it appears to be expedient in the due course of management of the property of the lunatic."

And sub-section (5) directs that "nothing in this Act shall subject a lunatic's property to claims of his creditors further than the same is now subject thereto by due course of law."

The operation, doubtless, of the above stated clauses of the Act will be to bring under the direction of the Judge in Lunacy a large number of cases either hitherto not dealt with, or which have been regulated by the members of the family of each such lunatic without legal authority; and as all these cases are unvisited by the Lord Chancellor's visitors of lunatics, there does not appear to be that amount of personal protection thrown around them which is afforded to the cases by inquisition, while their estates are, at the same time, deriving the benefit of the legal arrangements of the Act, without any adequate contribution to the funds by which those arrangements are carried into effect.

J. ELMER.

CHAPLAINS OF LUNATIC ASYLUMS.—Appointment.—In "Archbold's Lunacy" (1877), lxx., on the subject of

the appointment of a chaplain, it is written, "The committee of visitors of every asylum shall appoint a chaplain for the same who shall be in priest's orders, and shall be licensed by the bishop of the diocese, and the licence of any such chaplain as aforesaid shall be revocable by the bishop whenever he shall think fit, and such chaplain, or his substitute approved by the visitors, shall perform and celebrate in the chapel of or in some convenient place within or belonging to such asylum, Divine service according to the rites of the Church of England as established by law, on every Sunday, Christmas Day, and Good Friday, and shall also perform and celebrate such service within the said asylum at such other times, and also such other services, according to the rites of the Church of England as established by law, at such times as the visitors shall direct." In Partridge's "Handbook to the Lunacy Acts Amendment Act 1889," s. 77, the clause occurs, "the committee of every asylum may appoint a minister of any religious persuasion to attend patients of the religious persuasion to which the minister belongs, and may allow him such remuneration for his services as they think fit." A note is appended, "this for the first time authorises remuneration to ministers other than those of the Established Church."

2. **Residence.**—"The chaplain is not required by the statute to reside, but a house may be provided for him on the spot."

3. **Removal of Chaplain.**—"The committee shall have power to remove the chaplain, and shall from time to time, upon every vacancy, by death, removal, or otherwise, in the office of the chaplain, appoint some other person to such office subject to the conditions and restrictions affecting the original appointment to such office."

4. **Superannuation.**—"In case any chaplain become from confirmed sickness or infirmity incapable of executing the office in person, or have been an officer in the asylum for not less than [fifteen] years," visitors may grant a superannuation allowance not exceeding two-thirds of his salary, &c.

5. **Burial Ground.**—"In the case of a new burial ground, the visitors may provide for the appointment of a chaplain therein."

6. **Other Duties.**—Besides those connected with Divine service, may be mentioned visits to the infirmaries in particular, and also to the general wards; the keeping a journal of his work; the care

of offertory moneys; books; attention to the spiritual interests of the household, &c.; details varying in different institutions. (Consult "Archbold," 2nd edit., and Fry's "Lunacy Laws.")

H. HAWKINS.

CHASMUS HYSTERICUS (*χάσμη*, a gaping; hysteria, *q.v.*). A name given to the persistent yawning so frequently observed in hysterical subjects.

CHEMISTRY OF BRAIN. (See BRAIN, CHEMISTRY OF.)

CHILDREN, Delirium and Night Terrors of. (See DEVELOPMENTAL INSANITIES and PSYCHOSES.)

CHILDREN, Insanity in.—In the remarks which follow, we propose to limit ourselves to the consideration of insanity as opposed to idiocy, and of childhood as opposed to pubescence. That insanity in children signifies an unstable nervous system is of course true, but it may be consistent with the appearance of a fair and progressive intelligence. For immediate purposes, therefore, we may draw a distinction between imbecility in its obvious degrees, and the insanity with which we have to deal at present. The insanity of children, thus limited, is a subject of very great interest, but it is not commonly met with, and is liable to escape careful and continuous observation. The physician practising in chambers sees these cases not infrequently, but consultations with physicians are generally few and widely separated in date, and are especially so in cases which offer little place for systematic medication, and which parents and relatives often either fail to recognise, or, recognising, may consider to be within the skill of nurses and pedagogues.

Again, insane children, unless gravely afflicted, can often be managed at home, and thus they escape the systematic watchfulness of the medical officers of general asylums; while on the other hand they are, as we are here to discuss them, not defective enough to be sent to idiot schools. To many persons, therefore, and even to not a few medical men, to speak of insanity in children is to speak of a strange thing. That children should develop imperfectly is but too familiar to them, but that a child, not obviously defective, should at an age so full of brightness and hope, become perverted in mind, is as painful as it is an unwonted idea. But if insanity in children be not very common, it is, at any rate, far from rare, and even melancholy itself may find its seat in hearts which are naturally so light and gay. The insanity of children is the vestibule of the insanity of adults;

in children we see in simple and primary forms that with which we are familiar in the more complex and derivative forms of insanity in adults. Hence, in the insanity of childhood we find a special interest in tracing the elemental forms of nervous actions, and in learning by this means to analyse their higher manifestations in maturer persons. The mind and affections of the child are far simpler than those of the least educated adult. The impressions of twenty years, and the organic growth of twenty years, carry mental organisation infinitely beyond that of ten years of age, though there is more similarity between the insanity of the simpler adults and that of children, than between that of either of these and the insanity of highly cultivated persons. The insanity of children cannot have a large quality of reflexion; the delusions of children cannot have much elaboration: the mania of children cannot be constructed on the scheme of the mania of adults; the child's insanity must be an insanity of the senses, of the simpler impressions, and of the instincts, that is, of lower and more early organised centres. There is, as it were, a veil between the mind of earlier and the mind of later life; a veil beyond which disturbance cannot penetrate; faculties which are undeveloped can scarcely be disturbed, and each stage of mental enlargement must have its own character of diseased as well as of normal function. However alike, then, the causes of any series of cases of insanity may be, the resulting groups of morbid phenomena will vary with the age of the subject, taking age to mean not hard-and-fast terms of years, but stages of growth. We say the *group* of morbid phenomena will vary with the age, because we are tempted to extract one or more prominent symptoms, and to measure our similarities and dissimilarities by these, and to ignore the truth that maladies are groups of phenomena, and are no more to be classified by merely prominent features than are animals. A bat, for instance, is not intimately like a bird, although both have wings. The strange occurrence of suicide or homicide in children is not to be taken to identify insanities which betray these impulses in children and adults. Suicide or homicide in children is an unreflective act. The act is probably in great measure imitative; the child has heard of killing and of death, but has not, by reflexion, any ideas of their meaning. In a child's mind murder or death has not built up those fabrics of thought and association which exist in the minds of older persons, and for a child they have

little meaning. Even mature adults find it difficult to rid themselves of the notion of a continuing similar interest in this world after their own death. Thus, men make vindictive wills, and women are anxious that the family vault should be "dry lying." The child, far less capable than any adults of realising the meaning of death, hangs himself to annoy his father, or drowns himself to escape a lesson for which he is not prepared. The healthiest children, again, enjoy stories of carnage and even of cruelty, which bring to them no pathetic associations, but minister to the searchings of curiosity and the love of adventure. In the same way, to children brought up in safety and peace, the very meaning of danger may be long unknown. The child who drowns himself to escape a whipping flies from the known to the unknown, as it would fly through any open door reckless of its outlet, and this kind of act has but a superficial resemblance to the suicide of a middle-aged man, who sees in death a sole and final release from intolerable sorrows, or the extinction of an intolerable pain. In both there may be a lack of inhibitive capacity, but that is nearly all that can be common to the two cases.

If man lives in a vain show, far more so does the child; if man's mind be but a phantom in relation to the world, so fantastic is the child's mind in relation to that of the man. Fantastic—that is the key to the childish mind; in him there is no definite boundary between the real and the unreal. Day dreams, which in an adult would be absurd to the degree of insanity, are to a child the only realities. When very young, a child seems to live in fantasy; even its own self is to itself a ghost. It will address its own solid body by another name as something other than itself, as a companion or confidant of its inner being. As the child grows older and sense-impressions organise themselves more definitely, and submit to comparison, fantasy becomes make-believe, and the child slips backwards and forwards between unconscious, semi-conscious and conscious self-deception. Pretty are the fancies of a child—while it is a child—yet with its healthy growth these must be transformed. But if the growth of the mind be something less or something other than healthy, then these fancies keep their empire; they do not attenuate, and the child does not put off its visions. Delusions they are not, scarcely even in an etymological sense, being rather persistences than perversions. A delusion presupposes ideas, and ideas are very rudimentary in early life, when pheno-

mena of this kind are rather of the nature of waking dreams than the hue and cry of the pack of all mental faculties hunting a hare, which we see in adults. In fact, the distinction between delusion and hallucination becomes more and more difficult as we deal with younger patients, until in young children delusion may almost be said to resolve itself into hallucination.

The affective and imitative life again is a large part of the being of children, and we see, as we should expect to see, the effects of disturbance herein, rather than in the sphere of thought which in children is rudimentary. Of such are perversion or absence of early affections and morals, unreasonable terrors, tyrannical habits or tricks, impulses to mischief, or, on the other hand, the more amiable faults of excessive shyness and self-distrust, morbid conscientiousness, confession of imaginary sins, religious exaltation, unseasonable and imitative religious profession and pater, faddy notions about cleanliness and the like, which, if less revolting, are none the less significant of insanity, and are little less troublesome to guardians.

Brief maniacal paroxysms may be caused in children by terror or rage, but the common mania of adults is extremely rare in children, but we have seen many cases in which may be traced the outlines of a sort of recurrent mania. We mean that a child may be "good" for a few weeks, then almost imperceptibly begin to be naughty and irritable, and even violent. As early changes we often see cunning, greediness at meals, or rude and selfish manners and conversation. Whether as cause or consequence, perhaps as consequence, the secretions also become perturbed, the bowels become constipated, the breath grows offensive, the belly tumid, and the urine red and strong. In a few days or weeks these phenomena subside, the appetite becomes normal, the tongue cleans, and the abdomen falls; coincidentally, the manners soften, the irritability lessens, the expression of the face becomes tranquil, and restlessness passes away. This stage may be followed by one of painful and reiterated self-accusations and abnormal repentances, but more commonly the child seems to have but an imperfect remembrance of what he has gone through.

The prevalence of night terrors, somnambulism, trance-like states, and so forth, in children who are or may become insane, or who inherit the insane diathesis, are well known, and we well know how common is the connection of these mental disorders in children with motor disorders of the epileptic or choreic type. Disturb-

ance of the automatic or instinctive functions of the childish mind, though by no means constantly, yet is so often associated with muscular aberrations in childhood as to be consistent with the supposition that mental disorders at this age belong to parts which lie in function near those central motor ganglia which are often associated with them in perturbation, and below those parts which at a later date assume the work of analysis and of higher imagination. They lie in the centres of earlier organisation, and the symptoms, therefore, lack the analytic and constructive powers, and the ideal fulness of the insanity of adults. If we descend to the lowest stage of visible human life—to the baby—we find that insanity betrays itself first and almost entirely in its one active muscular group, in its one plane of contact with external things; the insane baby bites and kicks, and biting and kicking are the range of its symptoms, the external measure of its madness.

Epilepsy in children, as in adults, is often replaced by actions of a more complex order, such as sudden attacks of destructiveness or other tempers. But we have never met with a case of quasi-purposive epilepsy in children, wherein acts were as complex, elaborate, and extended as they often are in adults. In children, these acts are sudden, brief and simple; such, for instance, as suddenly upsetting the tea-table.

Apart from traumatism, sunstroke, poisons, malformation, and the sequelæ of typhoid and other fevers, &c., insanity in children is practically always hereditary, though bad bringing up and excessive study may largely conspire with original tendency to produce it. If in such a case the parents are not actually insane, eccentric or dissipated, we shall find that syphilitic antecedents may have been the cause of insanity in the offspring, or the father may have been well advanced in years, if not of failing vigour, at the time of procreation.

We ought not to speak of unstable nerve centres as the substratum of motor or mental disturbances. It is the business of nerve centres to be unstable, to resent at once the slightest impressions. The fault lies not in instability of the nerve centres, but in the want of capacity or activity in the inhibitory centres, which should control, that is to say, should absorb or divert, the normal activity of the lower. In idiocy, higher centres do not develop; in insanity they exist, but are feeble, and permit the lower to become insubordinate, to obey the external stimulant too directly. Such children are often

attractive in appearance, but are also often delicate in build and feature and under the average weight and stature of their age.

The prognosis of insanity in children must of course be very variable, and be least hopeful in destructive cases and cases of defective moral sense. Still, if we take the average run of children of not very defective organisation or very automatic habits, children suffering, for example, from melancholia, superconscientiousness, fads, dominant habits or notions, timidities or irresolutions, mild recurrent manias, ill-governed passions and so forth, we find recovery usually takes place in two or three years under judicious management, liberal nutrition and hygienic methods of life. Judicious management, which is the most essential condition of amendment, is, however, very difficult to obtain. The worst cases of the kind are taken to idiot asylums; but they do badly with weak-minded children, and both the kinds of suffering are aggravated by their association. In private practice governesses educated especially for this calling may be engaged. It is earnestly to be hoped that the number of ladies having the mental and moral endowments necessary for such difficult duties, and who will devote themselves to so painful a calling, will increase both for purposes like the present, and also for the elevation of the general standard of attendants upon the insane under all circumstances. Occasionally these children may be sent to schools where the tact and watchfulness of the master, and the forbearance of their fellows, can be relied upon. Certainly the pressure of discipline and order, the example of wholesome-minded companions, and the setting of high standards for imitation, tend greatly to favour recovery. Relative mental overstrain must of course be avoided, and bodily growth encouraged. We are not likely to forget that insanity in children, if uncured, may prevent the due advance of the organisation of the results of impressions, and may ultimately, as adolescence approaches, leave the sufferer in a state of greater or less imbecility.

[We have recently seen several cases under the care of Dr. Wiglesworth at the Rainhill Asylum, of undescribed degenerative cerebral disease in children, which are of great interest. Two were cases of progressive brain degeneration in children, presenting a remarkable resemblance to general paralysis. The salient features were *slow but progressive dementia, with concomitant steady development of generalised paralysis, and great emaciation.*

The children—girls—had been intelligent (4th standard). In one case the symptoms commenced at the age of 11, and proved fatal at 16. In the other the affection commenced at 14, and is now (aged 17) under observation. In both cases there had been some time before the development of the symptoms, a history of a somewhat severe fall. No convulsions in either case. Speech in both became (when case was advanced) somewhat hesitating and tremulous.

In the fatal case the brain was greatly wasted, there was great and general opacity of the arachnoid, but no congestion of the meninges. The cortex was much diminished in depth, and the ventricles enormously dilated.

A third case may be mentioned in which a child of seven came into the asylum with a distinct attack of mania, and subsequently developed convulsions with progressive weakness and dementia. It is not clear yet, however, whether this case should be included in the same category.

This malady, resembling general paralysis, has been noticed also by Drs. Clouston and Shuttleworth, and may be due to inherited syphilis, though the evidence is imperfect. On autopsy, brain-wasting, arterial thickening, and "vacuolation" are found.] T. CLIFFORD ALBUTT.

[References.—La Folie chez les Enfants, par Dr. Paul Moreau (de Tours) 1888; Psychologie de l'Enfant, par Bernard Perez, 1886; Maudsley, Pathology of Mind, 1879, ch. vi.; Langdon Down, Mental Affections of Childhood, 1887.]

CHINA.—Inquiry in regard to the prevalence of insanity and the provision for the insane tends to show that the former is less than in Europe, and that the latter is practically *nil*. Missionaries state that they see little of insanity. A Chinese lawyer assures us that insane persons and idiots are taken care of at home in a large proportion of cases. Dr. Wise, in his "History of Medicine," vol. ii. p. 570, states that violent cases of insanity are neglected and remain as outcasts of society to live as beggars and vagabonds. "Idiocy," he says, "is distinguished from lunacy, and the latter is divided into two kinds, *kwang* (mania), with an excess of the *yang* principle, or fire and excitement; and *teen* (dementia—incoherent madness), with an excess of *yin*, or excess of depressed fluidity. By some authors insanity is treated as a specific disease, and is characterised by watching, want of appetite, foolish fancies of grandeur and wisdom, unseasonable mad laughter, singing, and silly actions." Dr. Wise attributes the rarity of insanity among the Chinese to their regular manner of life and temperate habits. Loss of

memory, the effect of sudden surprise, fear, &c., is classified under the same head, a few simple drugs being recommended for the cure. As sympathy is not allowed by the Chinese, and their love of theorising and drawing deductions from mere speculation explains every morbid phenomenon, no doubt is expressed and no care observed in arriving at a true conclusion (*op. cit.*).

THE EDITOR.

CHIROMANIA (*χείρ*, the hand; *μανία*, madness). A synonym of Masturbation whether occurring before or during an attack of insanity.

CHLORAL. (See SEDATIVES.)

CHLORAL HYDRATE. (See SEDATIVES.)

CHLORAL URETHANE. (See SEDATIVES.)

CHLORALAMIDE. (See SEDATIVES.)

CHLORALISM (*chloral*, the word formed from the first syllables of the names of the substances used in its formation, *chlorine* and *alcohol*). The morbid condition of the system produced by the long-continued use and abuse of chloral hydrate. Cerebral anæmia, nervousness, irritability, sleeplessness, melancholia, enfeeblement of mental power, weakness, and want of control over muscular action, slight paralysis, joint-pains, enfeebled action of the heart, gastric disturbances and skin irritation, have, it is said, been induced by the drug.

CHLOROFORM.—The action of chloroform as a sedative will be stated under that head, but it may be noted here that, when inhaled, the cerebral phenomena resemble those of alcoholic intoxication in the first instance, including sensorial illusion, mental excitement, rapid flow of ideas, and leaving no trace behind them on the memory. To this stage of intoxication often succeeds one of delirium, determined by the nervous constitution of the patient; sometimes it is gay, accompanied by fits of laughter, at others painful, with flow of tears; some patients are plunged into a profound ecstasy, others are furious and in a state of terror, while others enjoy pleasurable sensations. This condition may well be compared to drunkenness associated with the characters of acute mania, incoherence, volubility, and hallucinations. As a rule, no trace of the delirious conceptions remain in the memory of those who have inhaled chloroform. Baillarger, however, has recorded the case of a female patient who on waking made absurd charges against her husband in relation to her sleep. Some months afterwards she retained the same delusion. Such instances prove that a person may be hallucinated

during the intoxication of chloroform and that serious and unfounded charges may be made in consequence against medical men and others. (See SEDATIVES.)

M. LEGRAIN.

CHOREA and INSANITY.—Definition.—In defining the motor disturbance, which was first correctly described and defined by Sydenham about the middle of the seventeenth century, as a special kind of convulsion (*convulsionis species*), we have first of all to look away from all theories which have been framed about this disease, and must confine ourselves to an unprejudiced observation of the typical symptoms of the disease. There is nothing known about the changes in the nervous system or in the muscles which produce choreic movements; for the same reason the employment of such terms as “irradiation,” “co-ordination.” &c., in the definition of the disease will lead to wrong conclusions about chorea. In making use of the description which Sydenham has given, and which is nowadays still considered classical, we define chorea as a motor disturbance which is characterised by an exaggeration of voluntary movements, and by the occurrence of more or less numerous simultaneous movements which are purposeless. It is only when these symptoms are present that we have a right to speak of chorea. That convulsions of another kind occur does not seem to be sufficiently proved, and to explain them as belonging to chorea is under all circumstances doubtful. It is instructive to recollect that the character of these movements, which is remarkable on account of their exaggeration and simultaneity, may easily be seen for a shorter or longer period in any child during the first months of its life. It is the time of transition from the jerking and convulsive movements which are peculiar to the first year of life, into those which are governed by the will. The movements of a child show still later a more or less pronounced choreic character, especially in excitement, and nearly always when new forms of motion are practised. Neither are exaggeration of the movements nor disturbing simultaneous movements absent in adult persons who acquire accomplishments which require well adjusted and combined movements, as playing the piano, dancing, fencing, &c. It is particularly difficult to suppress these simultaneous movements. It is, therefore, reasonable to conclude that in voluntary motion not only must there be innervation of certain groups of muscles, but also the suppression of movements

which are roused but which are not desired.

It follows, from the character of chorea, as we have defined it, that there are manifold and close connections between this disease and the mental functions. The more curious is the fact that only in recent times—about two decades since—the view of an original connection of chorea with mental derangements has been upheld with increasing certainty, and corresponding observations have been published more and more plentifully, whilst ancient pathology disregarded and even positively rejected the mental anomalies in the course of chorea (Romberg, Hasse). This fact may find an explanation in the rarity of chorea in adults, and in the difficulty of observing and explaining mental symptoms in children, if, as in these cases, the whole attention of the physician and of those who are near is absorbed by the extraordinary motor disturbances.

Classification.—The ever-increasing material of observation makes it necessary to separate ordinary chorea, which has a pretty rapid course, and terminates in recovery, and which, therefore, might be called acute chorea, from chronic and incurable chorea. Apart from chorea in pregnant women (*chorea gravidarum*), the acute form would be chorea of childhood and youth, the chronic form chorea of adults. Chorea during pregnancy requires, like mental derangements of pregnancy, special treatment. The hereditary connections of many cases of chronic chorea, which have been more exactly studied since Huntingdon wrote, do not justify the adoption of a separate form of hereditary chorea. The same is the case with chorea in old men (*chorea senilis*) which occurs extremely rarely. According to its origin, it belongs to that form which follows other severe cerebral diseases—the so-called post-hemiplegic chorea. The distinction between an acute and a chronic form of chorea is also of importance for the real mental diseases which are combined with both forms. They follow most frequently a fully developed and very severe chorea, and have, therefore, with regard to it, to be taken as *consecutive mental derangements*. That choreic motor disturbances occur in persons who are already insane, so that we might be able to speak of a *consecutive chorea*, is much rarer, and chorea is then less severe. Consecutive mental disease belongs principally to acute chorea; consecutive chorea is nearly always chronic. Also when mental disorders and motor disturbances occur simultaneously, a case which is not at all rare, chorea seems to be

chronic. We must also point out here that acute chorea is generally followed by a simple mental derangement—mania—which can easily be regarded, like chorea, as a motor disturbance of psychical origin, and that mania disappears at the same time, or nearly so, with chorea. But the mental derangements in which chorea develops itself as consecutive chorea, are of a much more complicated form. Defects of intelligence, which mostly existed before (as in chorea of apoplexy and progressive paralysis of old age), are accompanied by states of excitement, dementia and hallucinations. For the description of mental derangements, which are combined with chorea, it will be well to give beforehand a description of the lighter mental anomalies which never are entirely absent, and then to discuss all those factors which in the symptomatology, ætiology and pathological anatomy of chorea, indicate the cerebral, and particularly the mental, relations.

Symptomatology.—Although those ancient investigators did not take into consideration the psychical anomalies of the fully developed disease for reasons which are explained above, nearly all of them nevertheless directed their attention to the mental state before the appearance of the motor disturbances. Nobody has nowadays any doubt about the derangement of the mental functions in the prodromic period of acute chorea, which is considerable and mostly very extensive. Certain anomalies of the mental state, which last for weeks or even for months, are very common. Great excitability, unsteadiness of temper, and changes from exaggerated merriness and wildness to crossness, &c., will scarcely ever be entirely absent. As far as children are concerned—which will mostly be the case in acute chorea—these symptoms will not be much cared about by those who are near, and will be taken as bad temper and naughtiness which can be put an end to by educational means. In rare cases only they will apply for help to a doctor or to an alienist.

In a girl of eight years, who was brought to us by her parents, there was a state of mental depression, with a marked tendency to remain in the same position, and with a corresponding expression of countenance. From time to time—once or twice a day—she became, without any external cause, suddenly excited, cried, scolded, broke what was within her reach, and struck at those who went near to her. Illusionary ideas or hallucinations, according to which the child might have thought herself offended

or threatened, were denied (after recovery as well). She said she had been only angry and cross. Three or four weeks after the commencement of this state choreic movements were noticed for the first time; swinging of the right arm, and slight distortions of the face. Then a general and rather severe chorea had developed itself within a week, which became better after another fortnight, and having lasted altogether about six weeks disappeared entirely, together with the mental derangement. The state which I have described just now is evidently very similar to the so-called *melancholia attonita* or *cum stupore*, which has, according to my opinion, been more correctly called after the most prominent mental symptoms, *melancholia ecstasica*. The same state of obstinacy and apparent stupor can often be seen a short time before the appearance of mania, especially in young persons, a fact which deserves special attention because of the close connections between mania and chorea. When we examine exactly the mental state before the outbreak of typical acute chorea, we shall always find present the symptoms of embarrassment and inhibition of thought—though only in a small degree. It is only natural that the behaviour of the patient is interpreted as owing to moral and intellectual fault, and that the supposed slowness and obstinacy are blamed and punished in school and at home as laziness and naughtiness. That direct intellectual defects occur in the prodromic period, does not seem to us to be proved.

The choreic motor disturbances, which appear first, are apt to be misinterpreted in the same way; for these develop themselves by degrees from insignificant and isolated anomalies which easily escape notice, to the general form of chorea.

Slight choreic disorders, which last for days and weeks, and are limited to certain movements, are a peculiarity of by far the greater number of patients—of those who are still in their childhood. Especially those parts of the body which are exposed to the attention of others, as arms, face, neck, and shoulders are attacked first. The children themselves, who are not capable of observing their own condition, do not notice these changes at all, because, as we explained above, they have that feeling of embarrassment which is scarcely ever absent at the commencement of the disease. Those who are with the children are the more inclined to interpret the upsetting and dropping of things, the distortions of the face, &c., as bad manners. The behaviour of their

companions before the outbreak and at the commencement of chorea, includes an immense danger for the mental state of the patients. As we suppose the motor disturbances are known, we shall not discuss them here specially.

The swinging and shaking of head and arms, the shuffling and stamping of the feet, the flexing and extending of the legs, the opening and shutting of the mouth, the sudden thrusting out and retracting and the rolling movements of the tongue, the rolling of the eyes, the contortions of the face, the distortions of the whole body, all these can never be confused—even in more advanced stages—with any other convulsive disease. Even in the wildest contortions the original form is not lost; one cannot get rid of the idea that an impulse of will was the first cause.

Even the doctor does not at once overcome the impression of the comic and fantastic, from which this wild play of the muscles of chorea has been called muscular insanity—"folie musculaire" (Muskelwahnsinn)—whilst uneducated people often laugh at and tease the poor patients. In the examination of the mental character of chorea, the impression is very forcible that the motor disturbances from their first development to the highest stages are intentional acting. Universally acknowledged is the influence of mental stimulation on the choreic motor disturbances. Increase and decrease of both stand in close connection. Sleep, with the exception of a few cases, brings remission of both. Of great importance is the fact that the involuntary muscular system remains almost entirely exempt. The sphincters also of the bladder and of the anus remain unaffected. We also recognise the mental relation of chorea in the fact, that at first and in the further course of the disease, particularly those parts of the body are attacked which stand in close connection to mental irritation, as face, arms, neck and shoulders. Of still greater importance seems the fact, which easily may be observed, that the execution of those movements especially, which require a manifold and strong mental effort, is disturbed and inhibited.

Simple movements, especially if done by command of the observer, as raising and lowering of the hand or the foot, bending of the arm, &c., are executed correctly and quickly. Even certain simple movements of expressions as nodding, shaking of the head, and shaking hands, are mostly not perceptibly altered. But as soon as the question is about movements, which require greater practice and atten-

tion, like arranging, removing, and cleaning things, walking in certain times and in a certain direction, writing, &c., most severe and most extensive motor disturbances break out. It is interesting to see how choreic persons, particularly those who are not too young, learn, when the disease lasts a long time, to make their actions fit in with the motor disturbances.

A woman from the country, forty-two years old, who, because of her great excitability, had been committed to our treatment, and who for eight years had been choreic in a high degree, nevertheless did her work at home and in the fields very well. When her mental affection ceases, she is glad to help the attendants in cleaning the rooms and in similar work; she likes to knit, and does not want any help for dressing and undressing. At her meals she is thoroughly clean; in spite of much moving about of the spoon she knows how to keep her dress and the table-cloth clean. That the mental functions more frequently undergo a greater change than that of the prodromic period is undoubted. Expressions of will and sensation are directly as well as indirectly influenced by the motor disturbances in a most unfavourable way.

Necessarily there must be a reflex action of the choreic movements upon the mental function, as in health we observe the corresponding process. We have to mention again that the behaviour of the companions can increase that unfavourable reaction. In chorea of long duration, there seems to take place a transference of that externally clumsy and impulsive behaviour to the will, intellect and feeling. The patients become more irritable, and consequently more aggressive. The whole of their ideas partake more and more of a clumsy, comical, and impulsive character. This is particularly noticeable in certain cases of chronic chorea in adults. Every action seems to them offensive, and even in a most harmless intercourse they use abusive language quite contrary to their intentions and their character.

Ætiology.—Among the exciting causes of chorea mental affections are supposed to be of even greater importance than in other nervous diseases, or even in mental diseases properly so-called. In recent times, again, Sturges has brought nearly one-half (fifty-five) of those cases he observed accurately in direct connection with a mental cause. A considerable number of observers tell us that chorea broke out almost in the same way as epilepsy, after a fright. The predom-

inance of chorea in women and children is thought to be accounted for in this way, because both are more frequently and in a higher degree exposed to mental shock. The complaints of the injury done to the health of our children by the education at school, which have become very numerous during the latter years, have also drawn attention to chorea. According to the investigations of the British Medical Association, more than three fourths of all cases of chorea minor occur during the age from six to sixteen. Over-burdening by the length of school-hours and by the difficulty of lessons as well as home-work, dread of the numerous examinations, and grief over punishment, &c., are in numerous cases said to have been the factors that brought about the disease. It cannot be denied that these statements form an exact parallel to the question of over-burdening by school in regard to mental diseases.

The fact that there is an over-burdening of the intellect, not only in children, but almost still more in adults, cannot be denied. But this does not decide the question whether this fact or any other injurious mental process has brought about chorea in every case where it has been proved. The same difficulties arise here as in mental diseases. We cannot deny that mental diseases, to a very great extent, have their origin in psychical causes, but the analysis of each case by itself never allows us to give a definite opinion. The history of each case, which is studied exactly, shows us a confusingly great number of ætiological points, the value of which reminds us too often of the words of the poet, "cheap as blackberries" (*billig wie Brombeeren*). We rather think the question has to be put, whether the patients (in chorea, mental disease, &c.) have frequently, and to an extraordinary extent, been exposed to severe shocks which, according to our experience, have an undermining and weakening effect on the mental powers.

We shall then soon find that this is not at all the case. Neither the history of choreic persons nor of the inhabitants of asylums show tragedies such as uneducated persons think to be the rule in such cases. Special occasions of fright, fear, great mental strain, &c., do not occur with them oftener than with those who do not suffer from those diseases. What child has not been suddenly frightened more than once by a dog that jumped at it? And an event like this is said to have been the cause of chorea! No man's life will ever be free from severe mental affections, and they belong to the normal

processes, which undoubtedly further the development of the mental powers, in many directions.

We have indeed to accept the views of those authors who think mental affections only one and a not at all important determining cause of chorea. A peculiar kind of weakness and excitability of the whole nervous system, especially of the mental faculties, and a great susceptibility to fright, must have already developed itself, if the mental affection is to have such consequences. We should have the same doubts as to the origin of chorea from mental affections as regards the supposition that it has its origin in example and imitation (mental contagion). Like other conspicuous and frightful convulsions (epileptic, hysteric, &c.), chorea is said to have spread endemically after some originally isolated cases in families and schools, &c. (Bricheteau-Leube.) But the recorded examples do not bear strict investigation. They are evidently cases of hysteria, of mental excitement, or even of simulation. At least the generally very short duration of the disease and its cure by separation and discipline are very suspicious. In trying to find out the insane inheritance of patients who suffer from chorea, we do well to keep in mind the remarkable difference between common acute chorea and the chronic form which we have mentioned above in another connection. The acute form of chorea is very rarely found in the ancestors, and, even taking neuroses in general, there is no neuropathic inheritance which is worth mentioning, and chorea is very rarely preceded by other nervous diseases. But, according to the relatively new observations which have been made, the greatest importance has to be attributed to insane inheritance in chronic chorea. Chronic chorea belongs to those diseases of the nervous and muscular system from which at one and the same time several members of the same family suffer, as—*e.g.*, hereditary ataxia, but in a still higher degree to those from which the ancestors had already suffered, and which had been directly transmitted, like hereditary atrophy of the muscles and, above all, like mental derangements. Huntingdon (1872) first mentioned several choreic families, in which the disease was transmitted from generation to generation. Peretti gives an account of a family the greater number of whose members (twelve) in three generations suffered from chronic chorea. Lannow counted nineteen cases in four generations. We ourselves know a family in which at the same time the

grandmother, the daughter, and two grandchildren suffer from chronic chorea; and, as there are no other members of the family, the whole of it suffers from this disease. The undeniably very close ætiological connection between acute articular rheumatism and chorea is worth mentioning, even if we do not accept with Griesinger a rheumatic form of insanity occurring vicariously in relation with acute articular rheumatism. Griesinger, as is well known, attributed to this affection of the joints, which is accompanied by fever, a special ætiological importance, as originating mental disturbances. That certain forms of mental derangements frequently occur after articular rheumatism is confirmed by numerous observations. Acute rheumatism, which preceded the mental derangements, had generally produced disease of the heart. The number of cases which have been published does not allow us to maintain this relation with certainty, but according to our own experience, we incline to the view that in chorea which is complicated by heart disease severe mental derangements frequently occur.

The same view holds good as regards chorea during pregnancy, because severe mental derangements have been observed occurring in this form of chorea (Ruhemann).

We have to keep in mind that acute articular rheumatism, like pregnancy, has an irritating as well as exhausting effect on the nervous system and produces a very great disposition to neuroses, while at the same time mental action is inhibited in different ways (pains, sleeplessness, cares, ill-humour of pregnant women, &c.). Youthful primiparæ especially, who have a tendency to anæmia and are neurotic, often suffer from attacks of chorea as well as of mental derangement. But the idea of infection or of the introduction of septic substances from the heart or the uterus is not excluded.

Pathological Anatomy.—The pathologico-anatomical examinations have not given sufficiently satisfactory results, and, besides, the greater part of these examinations do not show anything with respect to the brain. Rokitansky first called attention to the fact that interstitial proliferation of the connective tissue of the central nervous system occurs also in chorea. Golgi interprets in a similar way the appearances at a post-mortem examination of a case of chorea which had a standing of many years, as the result of interstitial encephalitis. According to Meynert, there is hyperæmia of the prosencephalon, particularly

of the grey substance of the ganglion of the substance of the nucleus lenticularis and caudatus. Chorea may have to be interpreted as spasmodic irradiation of the prosencephalon. Charcot, founding his view on three cases of hemichorea post-hemiplegica with cicatrices of the colour of ochre in the posterior part of the thalamus opticus, of the nucleus caudatus, and of the corona radiata, thinks that chorea is caused by changes in the bundles of motor fibres which lie in front and at the side of the sensory conducting fibres of the corona radiata. In six cases of chorea in pregnant women and of acute mental derangements, Jakowenko found under the direction of Flechsig peculiar corpuscles of concentric laminated structure, which were interpreted to be the product of hyalin degenerations, in the second portion of the lenticular nucleus. It is well known that Broadbent supposed the capillary embolism of the corpus striatum and of the thalamus to be the most frequent cause of chorea, and authors of former as well as of recent times have explained emboli or embolic foci of softening in the region of the arteries of the brain in the same way. Hundford found recently in a case of acute chorea with mental derangement a far-spread hyperæmia of the otherwise healthy nervous system, and in some places, especially in the spinal cord and medulla oblongata, thromboses, and hæmorrhages. But already Elisher (1874) found in a pregnant woman who suffered from chorea changes in the peripheral nerves (atrophy and proliferation of the connective tissue), together with degenerative metamorphosis, capillary hæmorrhages and cerebral emboli.

All these reports admit the conclusion, which has been made sure already in clinical medicine, that chorea depends on changes in the brain, but that the spinal cord also, and even the peripheral nervous system, can have a part in it. The question still remains, whether the changes which have been found, especially the more common ones like hyperæmia, are the cause of chorea, or whether they have to be taken as secondary symptoms. The pathology of epilepsy has also been influenced by such like fallacious conclusions, until physiological and pathological experiments made a more rational view possible.

Consecutive Mental Derangements.

—(1) *Choreic Mania.*—The maniacal excitement rarely begins before the first and after the fourth week of the outbreak of chorea. It is more frequent in girls and young men than in children, and in those,

again, the female sex is more frequently attacked by it. Great severity and long duration of the choreic motor disturbances introduce the attack of mania. It is often difficult to recognise the attack at once, because the impulsiveness and agitation of the mania grow, so to say, out of the choreic motor disturbances. The intervals of rest which are seldom entirely absent in chorea, are at last altogether missing. Even during sleep the movements do not stop entirely, and they frequently interrupt sleep until perfect insomnia, as in typical mania, comes on. The patients who, notwithstanding the violence of the choreic movements, were careful not to get injured and not to become too troublesome to those around them, become regardless and offensive. They upset the furniture of the room, the washing-basins, and the "pots-de-chambre," break them, and dip their faces into the flowing water and into the urine. They throw this fluid about, and make themselves and others dirty. The rolling eyes become lively and bright, and often show a threatening, insulting expression. They shake and swing their limbs about, and try to strike and to knock others, often causing injury to themselves. The movements of the legs are a mixture of choreic contortions and voluntary contorted jumps, which often cause them to fall down. We saw a female patient roll herself about on the floor, and heedlessly knock against the wall, against the beds, and against other persons. In consequence of these doings the body is soon covered with small and greater wounds, spots, scratches, and cracks; even the padded room does not afford sufficient protection. There is mostly a rage for undressing, not so much by tearing the clothing, but by a kind of reflex motion of twisting and turning their bodies against that piece of their dress which irritates them by its friction. An arm or a shoulder is wound out of the shirt, and in a very short time the whole lot of clothing has been taken off and thrown away. In spite of all their turbulence and agitation, the patients are able to give a certain account of their state. They then confirm by their utterances the impression one has got from their behaviour, that there is in all their doings a certain amount of purpose, and that they try, with the intention to do harm and mischief, to collide with every person coming in their way. Like all maniacs, they also try to attribute the fault to those who are with them. They say that they tease and annoy them, but the words with which they tell this are spoken, not with particular anger, but accompanied by laughter.

The common form of mania continuous with changing violence of agitation, is prevalent. Stupor, with explosive outbursts, is rare. Illusionary ideas, very vivid hallucinations, especially of a visionary kind, with great anguish, accompany these outbursts, which remind us of the aspect of the so-called melancholia agitata. The course of choreic mania compared with that of mania proper is an extraordinarily rapid one. Very soon, in some cases almost immediately after the greatest excitement, the latter diminishes gradually, and in a very short time complete recovery follows, for the choreic disorder, like the mental derangement, also makes very favourable progress. The close connection of the principal symptoms of both disorders, as well as their progress, make it probable that we have here a special form of acute chorea. The mania, which breaks out when the disease is at its highest stage, probably brings the crisis about.

(2) *Delirium Acutum*.—A great number of cases which have become known in latter years, in spite of the violence of mental excitement, do not allow of being counted among those states of mania which have just been described. This is already indicated by the severe somatic symptoms and by the progress, which mostly ends fatally. They are very much like those of the so-called delirium acutum as given in the text-books on mental disease. Great excitement, with anguish (*jactatio*), vivid hallucinations of vision, hearing, smell and taste, as also stupor, are reported. Fever is always present, and indications of endocarditis have seldom been missing before as well as after death. It has been noticed that chorea sometimes affects one side. It is relatively often that the mental derangement in pregnant women who suffer from chorea bears the character of acute delirium. If the progress of the disease is not acute, shy timidity and loss of memory, which are peculiar to insanity of pregnant women, are a prominent symptom. Complaints of giddiness and headache are frequent. Delivery is nearly always followed by recovery, but complete recovery takes place only after some time. There are generally a few symptoms of mental derangement (timidity, loss of memory) still present for some time after the chorea has disappeared.

We mentioned above that we find in chronic chorea almost exclusively chronic forms of mental disorder, which, according to their prominent symptom, belong to the general form of madness. Delusional ideas, illusions, and hallucinations of being

persecuted, mocked, and threatened, are nearly always present. In accordance with the impulsive character of chorea, the behaviour becomes easily offensive, even very dangerous; one such patient committed a murder (Krafft-Ebing). Weakening of the intellect is seldom missing, and later on this becomes complete weakness of the mind. A peculiarity of these patients is the mechanical uttering of vulgar sounds and expressions, (*copro-echolalie*).

We have to add that there are a few exceptions to the progress as described above. We ourselves a short time ago observed a maniacal excitement accompanied by vivid hallucinations of hearing, which was cured, and we think we are right in believing that similar outbreaks of a lesser degree in persons suffering from chronic chorea outside the asylum are not of rare occurrence.

Choreic motor disturbances which occur in insanity, nearly always bear a less significant character than typical chorea. Whether we are justified in supposing the exaggerated swinging and distorted movements which sometimes occur at the highest stage of maniacal excitement to be choreic movements (Griesinger, Schüle) has become very doubtful to us of late. In a classical case of this kind they have been proved to be quite voluntary. Other mental derangements which have also to be considered in this place belong to severe intellectual defects, however they may have been produced. We have sometimes observed chorea as trembling, fluttering movements in paralytic persons in the state of excitement and after attacks of an epileptic kind. Idiots sometimes show choreic disturbances which are conspicuous by their similarity to the clumsiness of young children we have mentioned above. When they are teased or made angry, they begin to move their limbs about in a violent manner, and to make grimaces; also the language becomes choreic.

Treatment.—On the different methods of treatment of chorea, which we suppose to be well known, we have only to remark that those methods which require mental or bodily effort of any kind (*e.g.*, gymnastics, hydropathy) have to be avoided after the appearance of mental derangement. Therapeutics can, with any chance of result, be indicated only in the acute forms of choreic mental derangements. Great care has to be given to the surroundings of the patients, especially in acute mania. If the patients have to keep in bed, the quiet staying in bed in a room without noise or without exciting impressions, is to be preferred to isolation in a cell, but

one scarcely ever can do without the padded room. Lukewarm baths, with cold showers on the head and back, if wanted, are very useful, because of the good they do to the skin, which is in many places injured. In medicinal treatment one has to employ narcotics energetically against sleeplessness and against agitation, which generally is very great and easily brings about exhaustion. Opium has been prescribed with very great success in powders of gr. $1\frac{1}{2}$ to be taken two to four times a day (Russell, Ludw. Meyer). Again, chloral, which has been recommended for the treatment of chorea (Mosler), may also be tried. But, before all, nutrition has to be attended to, and fluid or pulpy food which can be easily taken (milk, bouillon, eggs with cognac or wine, &c.) has to be chosen for this purpose.

The same applies to the acute delirium. The frequent taking of wine in large doses seems to us to be urgently indicated.

In chorea in pregnant women premature birth sometimes brings about a favourable result.

LUDWIG MEYER.

[References.—Russell, *Med. Times and Gazette*, 1866, 1868, 1869, 1870; Arndt, *Chorea und Psychose*, *Archiv für Psych. u. Nervenkrankheiten*, 1868; L. Meyer, *Chorea und Manie*, *Archiv für Psychologie und Nervenkrankheiten*, 1871; Huntingdon, *Philad. Med. Reporter*, 1872; Eade, *Brit. Med. Journ.*, 1889; Ruhemann, *Chorea Gravidarum (Dissertatio inauguralis)*, 1889; Peretti, 1885.]

CHOREA ANGLORUM (*χορεία*, a dancing; *Anglorum*, of the English). A Continental term synonymous with Chorea Minor; an old name for a neurosis of the central organs characterised by incoherent action of the muscles.

CHOREA, CHRONIC (*χορεία*; *χρονικός*, relating to time). A term applied to spasm of the facial muscles, or convulsive tic. (*See* HYSTERIA; TIC NON DOULOUREUX.)

CHOREA, DIAPHRAGMATIC (*χορεία*; *διάφραγμα*, a partition). A term applied to cases of facial spasm accompanied by an involuntary cry, due to spasmodic contraction of the diaphragm.

CHOREA DIMIDIATA (*χορεία*; *dimidio*, I halve). Hemichorea, or chorea of one side of the body only.

CHOREA, ELECTRIC (*χορεία*; *electric* shocks). The name of a disease which has principally been observed in Lombardy. It is characterised by rapid, rhythmic, clonic, convulsive, shock-like movements, succeeding each other regularly at the rate of from 20 to 80 per minute; generally beginning in the hand and extending to the one or other of the limbs; general convulsions sometimes occur, with or without insensibility; sometimes the affected limbs become paralysed, and there is often

vertigo, headache and delirium. (See CHOREA AND INSANITY.)

CHOREA, EPIDEMIC (*χορεία*; *ἐπιδημιος*, among the people). A term applied to the convulsive dances which in different periods of the Middle Ages spread among a populace like an epidemic. (See CHOREA SANCTI VITI.)

CHOREA, FACIAL (*χορεία*; *facies*, the face). Spasm of the facial muscles, also called convulsive tic.

CHOREA FESTINANS (*χορεία*; *festino*, I hasten). A form of chorea in which the patient is irresistibly compelled to run forwards or backwards.

CHOREA GERMANORUM (*χορεία*; *Germani*, the Germans). A synonym of Choreomania or Chorea magna.

CHOREA, HUNTINGDON'S, or **CHOREA, HEREDITARY** (*χορεία*; *hereditarius*, relating to an inheritance). A form of chorea affecting whole families, and apparently transmissible by inheritance. It occurs mainly in adults, and consists of irregular inco-ordinate movements appearing first in the facial muscles and spreading thence to the upper extremities and trunk; these diminish or cease on voluntary movement, and are generally considered incurable.

CHOREA, HYSTERICAL (*χορεία*; *hysteria*, *q.v.*). Chorea accompanied by or complicated with hysteria. In most cases of this description the chorea is subordinate to the hysteria and mainly mimetic. (See CHOREA, MIMETIC.) The female sex is either exclusively or at all events especially implicated, profound commotion of the spiritual life, mostly in the sphere of religion, is the chief cause of the phenomena being manifested in one degree or another, and all the more intensely where ignorance and superstition render the emotions susceptible to influences of that sort, and facilitate a disturbance of equilibrium in the nervous system whether physical or psychical. The psychical seizures and other kinds of nervous affection associated therewith (see JUMPERS, BARKERS, THE JERKS, LATA, IKOTA, KLIKUSCHI, TEGRETIER, TARANTISM), are clearly transmissible by way of imitation to wider circles from those first attacked, and the area and intensity of type of the morbid processes are reinforced by unintentional hysterical imitation, or in other words, by the morbid craving of the hysterical for attracting attention and interest (Hirsch). (See CHOREA SANCTI VITI, CHOROMANIA, EPIDEMIC INSANITY.)

CHOREA MAGNA (*χορεία*; *magnus*, great). A term applied to severe associated contractions of a choreic character,

but which do not seem to be a special disease, but rather a form of hysteria or some epidemic psychosis, or it may be malingering.

CHOREA MAJOR (*χορεία*; *major*, greater). A synonym of Chorea Magna.

CHOREA, MANIACAL (*χορεία*; *μανία*, madness). A name given to those cases of chorea in which the mental disturbance is very great. It occurs chiefly in females, at or soon after puberty, or during pregnancy. The mental disturbance may precede or accompany the chorea, which may remain slight, while the mental symptoms assume an intense form. There are delusions with wild, violent and aimless excitement, accompanied by garrulity, rarely partaking, however, of the incoherent type of acute mania; food has to be administered by force, and motions and urine are passed unnoticed. The excitement subsides usually after a short period, and leaves dulness and apathy, tactiturnity, and sometimes persistent hallucinations. The mental condition may slowly improve, but occasionally persists for weeks or months after the cessation of the chorea. (See CHOREA AND INSANITY.)

CHOREA, MENTAL (*χορεία*; *mens*, the mind). A fanciful term sometimes applied to cases of restless mania with great inco-ordination of ideas.

CHOREA, METHODICAL (*χορεία*; *μεθοδικός*, according to rule). That form of chorea in which the movements take place at definite intervals.

CHOREA, MIMETIC (*χορεία*; *μιμητικός*, prone to imitation). Chorea which has been caused by imitation. The spread of chorea by mimicry has been observed to occur in small epidemics in various kinds of institutions for girls; one person with chorea having been admitted, the malady has quickly extended to the majority of the inmates. The progress of the affection has been checked by separation and isolation. Bricheteau observed an epidemic outbreak of chorea in a ward of the Hôpital Necker among young girls, a child subject to the disease having been admitted, nine others of the twenty-eight inmates of the ward were seized with it. Bouzol observed an epidemic of hysteria with choreiform phenomena which happened in a factory at Albon (Ardèche); nearly all the girls employed in it were attacked, and in some of them the seizure was complicated with hypnotism (Hirsch).

CHOREA MINOR (*χορεία*; *minor*, less). A term formerly applied to that form of chorea in which the convulsive movements are moderate.

CHOREA NUTANS (*χορεία*; *nutans*, from *nuto*, I nod). A hysterical form of

chorea, characterised by nodding movements of the head which are nearly always rhythmical. (See CHOREA OSCILLATORIA.)

CHOREA OSCILLATORIA (*χορεία*; *oscillo*, I swing). A hysterical form of chorea, characterised by irregular or measured oscillations, partial or general, of the head, trunk, or limbs. The movements are wide in range and regular in sequence, and consist of alternating contractions in opposing muscles, especially the flexors and extensors of limbs and trunk; they cause an oscillatory motion as regular as the movement of a pendulum, ceasing only during sleep, and lasting for days, weeks, or months. The head may be thus moved from side to side, backwards or forwards, the jaws up and down, or less commonly the tongue may be alternately protruded and withdrawn, the eyelids rapidly closed and opened. Much more frequently one limb is thus moved, or the arm and leg on one side with or without the trunk, very rarely all four limbs. Rhythmic co-ordinated spasm of these forms is analogous, as Charcot has pointed out, to that which occurs in paroxysmal form in many hysteroid convulsions. In all cases it is probably pathognomonic of hysteria, and may occur at the onset of other forms of hysteroid affection (Gowers).

CHOREA, RHYTHMIC (*χορεία*; *ῥυθμός*, measured motion). A synonym of Chorea, methodical.

CHOREA ROTATORIA (*χορεία*; *rotator*, one who turns a thing round, from *roto*). A form of chorea characterised by rotation or oscillation of the head, trunk, or limbs, many times a minute.

CHOREA SALTATORIA (*χορεία*; *saltator*, a dancer). A form in which the patient involuntarily makes jumps either rhythmically or irregularly. (See SALTATORIC SPASM.)

CHOREA SANCTI JOHANNIS, CHOREA SANCTI MODESTI, or CHOREA SANCTI VALENTINI (*χορεία*; St. John, &c., names of saints who were supposed to relieve the affection). Synonyms of St. Vitus's Dance or Chorea, also used for Chorea magna.

CHOREA SANCTI VITI (*χορεία*; St. Vitus). St. Vitus's dance; a synonym of ordinary Chorea, and its popular name. The term was originally used for the epidemic dancing mania, a hysterical psychopathy which appeared in the fourteenth and fifteenth centuries in some parts of western Germany (Tanzwuth Choreomania). The sufferers were taken by order of the Strasburg magistrate to the chapel of St. Vitus, there to be cured of their malady by prayers to the saint. It is still commemorated in the grotesque "procession of

jumping saints" which is held every Whitsuntide at Echternach (Luxemburg). The same word, chorea, was subsequently used by Sydenham to designate the spasmodic malady which is now universally known under that name, and from that time a distinction began to be made between chorea Germanorum (choreomania) and chorea Anglorum (ordinary chorea). (Fr. *dance de St. Guy*; Ger. *Veitstanz*.) (See CHOREA AND INSANITY.)

CHOREA DEMONOMANIA (*χορεία*; *δαίμων*, a demon; *μανία*, madness). A synonym of Choromania.

CHOREIC INSANITY (*χορεία*, a dancing; *in*, neg., *sanus*, sound). (See CHOREA AND INSANITY.)

CHOREMANIA, CHOREOMANIA (*χορεία*, a dancing; *μανία*, madness) or **CHOROMANIA** (*χορός*, a dance; *μανία*, madness). Terms used for the dancing madness or chorea Germanorum. The dancing mania which at different times and in different places has seized certain persons, and then spread amongst the people like an epidemic. (Fr. *choromanie*; Ger. *Tanzwuth, Tanzsucht*.) (See CHOREA SANCTI VITI, CHOREA SALTATORIA, CHOREA HYSTERICAL, &c., EPIDEMIC INSANITY.)

CHOROSYNCLONUS (*χορός*, a dance; *σύν*, together with; *κλόνος*, tumultuous movement). A term for universal or general chorea.

CHROMATOPHOBIA (*χρῶμα*, a colour; *φόβος*, fear). The morbid and unreasoning dread of a certain colour.

CHROMOPSIA (*χρῶμα*, colour; *ὄψις*, sight). The perception of subjective sensations of light in the form of white or coloured clouds or wings, in cases of hyperæsthesia of the retina. This may occur in hysterical affections apart from any increased intra-ocular tension, which is its cause in glaucoma.

CHTHONOPHAGIA (*χθών*, the earth; *φαγεῖν*, to eat). Dirt-eating; a synonym of Cachexia aquosa.

CIRCULAR INSANITY (*circulus*, a ring; *in*, neg; *sanus*, sound) (**Folie a double forme** or **folie circulaire**).—**Definition**.—By circular insanity, or *folie à double forme*, we understand a special form of mental derangement, the attacks of which are characterised by a regular sequence of two periods—one of depression, and another of excitement, or inversely. With regard to its course, this disorder may present itself under two distinct forms: (1) When the attacks are isolated or repeat themselves after more or less long intervals only, we have insanity of double form, properly speaking, or the periodical type; (2) if the attacks follow each other without having a lucid

interval between them, we have continuous insanity of double form or of the circular type.

Circular insanity presents the general characters of intermittent mental disorders; all the attacks resemble each other, so that if we have observed one of them carefully, we find again in all the following ones the same symptoms, the same delirious conceptions, the same actions, the same course, &c.; moreover, the duration of such attacks shows but little variation. All these conditions allow us, if the former attacks have been well observed, to tell beforehand from the commencement of a new attack, the symptoms which will occur, and even to foresee the time when the patient will pass from one period into the other.

Synonyms.—Although the term is of comparatively recent origin, this disease has already received different names, which it is well to connect with their authors:

Folie à double forme (Baillarger); Folie circulaire (Falret); Folie à double phase (Billod); Folie à formes alternes (Delaye); Délire à formes alternes (Legrand du Saulle); Die cyclische Psychose (Ludwig Kirn); Das circulaere Irresein (von Krafft-Ebing), &c.

History.—This alternation of mania and melancholia has been observed in certain patients for a long time, but we must admit that, before Baillarger and Falret *père*, no physician saw in this fact a distinct and clearly defined morbid type. In the works of the celebrated English physician, Thomas Willis (1622-1670), we find the following passage on the relations of melancholia and mania:—

“After melancholia we have to treat of mania, which has so many relations to the former, that the two disorders often follow each other, the former changing into the latter, and inversely. The melancholic diathesis, indeed, carried to its highest degree causes frenzy, and frenzy subsiding changes frequently into melancholia (atrabiliar diathesis). These two disorders, like fire and smoke, often mask and replace each other. And if we may say that in melancholia the brain and the animal spirit are obscured by smoke and black darkness, mania may be compared to a great fire destined to disperse and to illuminate it.”

The authors of the eighteenth century accepted the theories of Willis without modification or addition. The same is true of the observers of the early part of our century; all have published interesting cases of insanity of double form of the periodical type, or of the circular type,

but they saw in it only a transformation of mania into melancholia, and *vice versa*. This was the opinion of Pinel, of Jacquelin-Dubuisson, Esquirol, Ance-aume, Guislain, &c.

Griesinger was destined to make a fresh step forward in this question. In his treatise, the first edition of which appeared in 1849 (“Die Pathologie und Therapie der psychischen Krankheiten,” p. 216, *et seq.*), he expresses himself thus: “The transition of melancholia into mania, and the alternation of these two forms, are very common.” It is not rare to see the whole disorder consist of a *cycle* of the two forms, changing very regularly. But the learned German author does not deduce from this the existence of a special morbid form different from mania and melancholia, which constitutes insanity of double form. Falret *père*, in his lectures at the Salpêtrière (*Gazette des Hôpitaux*, Jan. 1851), says, speaking of the course insanity may take: “We have also to mention another case of intermittence observed between the periods of remission and excitement in the *forme circulaire des maladies mentales*.” Further on he says: “It is a special form which we call ‘circular,’ and which consists, not as has been frequently said in a change of mania into melancholia separated by a more or less prolonged lucid interval, but in the change from maniacal excitement—simple over-activity of all the faculties—into mental torpor.”

To establish the regular alternation of melancholia and mania as a morbid type, distinct from mania as well as from melancholia, having its own character, course, prognosis, &c., was the work of Baillarger at a meeting of the Paris Academy of Medicine, Jan. 31 1854, when he read “Remarks on a form of Insanity, the attacks of which are characterised by two regular periods, one of depression, the other of excitement.” He called this form of insanity, *Folie à double forme*; he described most carefully its predominant symptoms, and insisted especially on its course and termination. The conclusions of this remarkable paper are:—

“(1) Besides monomania, melancholia, and mania, there exists a special form of insanity characterised by two regular periods, one of depression, the other of excitement.

“(2) This form of insanity: (1) presents itself in isolated attacks; (2) reproduces itself in intermissions; (3) the attacks may follow each other without interruption.

“(3) The duration of the attacks varies from two days to one year.

"(4) When the attacks are short, the transition from the first to the second period takes place suddenly, and generally during sleep. It takes place slowly and gradually when the attacks are prolonged.

"(5) In the latter case, the patients seem to enter into a state of convalescence at the end of the first period, but this return to health is incomplete: after a fortnight, a month, six weeks or more, the second period breaks out." (*Bulletin de l'Académie de Médecine*, vol. xix. p. 352.)

This is not the place to enter into the claims of priority which have been advanced. The reader is referred to Bailarger's note in the first volume of his "*Recherches sur les Maladies Mentales*" (Paris, 1890), and to our "*Traité clinique de la folie à double forme*" (Paris, 1883, p. 95 *et seq.*). An impartial examination will make clear his incontestable right to have been the first to introduce this morbid type into Psychological Medicine.

In a *mémoire* which Falret père communicated to the Academy of Medicine at a meeting, Feb. 14, 1854 ("*Mémoire sur la folie circulaire, forme de maladie mentale caractérisée par la reproduction successive et régulière de l'état maniaque, de l'état mélancolique, et d'un intervalle lucide plus ou moins prolongé*"), he gives a masterly description of this affection, in which he lays special stress on the importance of heredity in its production, on its more frequent occurrence in women, and, lastly, on the unfavourable prognosis which one is obliged to make. He gave it the name of "Circular insanity."

Monographs on this disease have been published in the Dictionaries of medicine which have recently appeared in France (Foville, "*Nouveau Dictionnaire*," de Jacoud; Ritti, "*Dictionnaire encyclopédique*," Dechambre).

It is just to mention also the article of Ludwig Meyer in the "*Archiv für Psychiatrie*," 1874; that of Kirn, "*Die periodischen Psychosen*," 1878; and that of M. Jules Falret, "*Etudes cliniques des maladies mentales et nerveuses*," Paris, 1890, p. 584; lastly, the monographs of Mordret, "*De la folie à double forme, circulaire-alterne*," Paris, 1883; and of Ritti, "*Traité clinique de la folie à double forme*," Paris, 1883.

Symptomatology.—Insanity of double form, according to the definition given above, consists of attacks, each presenting two regular periods, one of depression, the other of excitement. We have therefore to describe the mental and somatic symptoms, first of the phase of depression, then of that of excitement.

I. Period of Depression.—This does not present, in all cases of insanity of double form, the same character. Certain patients show symptoms of depression of all physical and intellectual powers only, whilst others suffer from actual melancholia, which may pass into stupor.

We have therefore to describe: (1) mental depression, (2) melancholia, (3) melancholia *cum stupore*.

(1) *Mental depression* is characterised by the chief symptoms of simple melancholia; the patients look sad without having melancholy delusions. They are depressed and inclined to immobility; they do not generally move if not compelled, and they very often lie down. If compelled to get up they will sit down in a corner where they cannot be disturbed, and remain there the whole day without stirring, so great is their tendency to immobility.

They are easily fatigued; they are incapable of any effort; it is even painful to them to speak, and if they decide to answer questions, they do so very slowly. If one insists upon asking how they feel, they complain about their painful condition and their physical and moral sufferings. They are the most miserable creatures, they say; they have lost all their physical and moral activity, and are conscious of this insufficiency of their physical and intellectual powers.

This depression, of which the patients are conscious, extends also to the moral sphere, and is especially characterised by complete indifference for those dear to them. They themselves also recognise that they have neither sentiment nor affection for their parents or children; they have lost their feelings for everything, and even the death of persons dearest to them leaves them absolutely indifferent.

Depression of physical power, intellectual obscuration, moral indifference, incapability of acting and absence of will (*aboulia*), are the principal characters of this condition of mental depression, which shows itself in the expression of the patients by the following signs: the face has the look of sadness and weariness, the features are contracted, the brows frown, and the eyes generally look down to the ground. The patients seem completely closed to the outer world, absorbed in their sufferings, and not taking the least interest in anything going on around them; but really this is not the case: they hear and see and are occupied with everything, and when the period of excitement comes on, they make use of all they have seen or

heard during the period of depression, either to complain about it or to mock at it.

These patients present themselves to the observer under two different aspects, whether they are observed in asylums or at liberty. Placed in special establishments they must submit to the common *règlement*, and are generally dressed properly and well nourished. To arrive at these results, however, they have to be stirred up incessantly. But if at liberty—and indeed many of them are—we can easily imagine how they are living. Locked up in their houses for whole days, for weeks, sometimes even for several months, they live in perfect inactivity, constantly lying in badly ventilated or hermetically closed rooms. They do not care at all for their person, neglect all rules of propriety, are only half-dressed, and scarcely think of taking food. It is easy to understand that in such a condition of self-neglect the patients require constantly looking after by their family or others.

(2) *Melancholia*.—Although the greater number of patients labouring under insanity of double form remain within the limits of this physical and moral depression, there are others whose condition becomes complicated by delusions of a melancholy nature. These conceptions may be classed under four principal headings:—(a) In certain patients we see on the constant and unchangeable soil of moral and physical depression, disgust of life—*taedium vitae*—develop itself. As a natural consequence, ideas of suicide also come on sooner or later and begin to predominate. Some, unable to resist their morbid desires, make an end of themselves. (b) A second class of delusions, and which cause great distress to the patients preoccupied with them, are those of ruin, incapacity, culpability, and condemnation. In this case the period of depression assumes all the characteristics of *mélancolie anxieuse*, save, however, the incessant mobility observed in this form of mental disorder. The patients live in a constant fright; they suffer from fear and uneasiness, sometimes vague but often well defined. They are criminals; they have committed the unpardonable sin; a mother rebukes herself for having her children brought up badly, and for having given them insufficient instruction and education; another patient is convinced that all the other lunatics around him suffer on account of himself, &c. At the same time these patients look much frightened; the expression of their eyes is most sad and full of despair. They remain sitting all

the day long, and twist themselves about, so to say, on their seat with low cries of complaint or deep sighs. They speak in monosyllables only or in short and interrupted phrases, as if they were afraid to avow the cause of their uneasiness and trouble. (c) The third category of delusions of a melancholy nature are those of persecution with hallucinations of hearing, ideas of imprisonment, and, in connection herewith, sometimes refusal of food. In addition to these ideas of persecution, these patients sometimes develop mystic ideas; they believe themselves to be in communication with celestial powers, and the persons around them are demons or agents of Satan. (d) Lastly, these patients may pass through the period of depression with hypochondriacal ideas; they complain of numerous painful sensations seated in the very different parts of their body; they ascribe them to their food, which causes them all sorts of diseases. In the morning they want to remain in bed to be examined by the doctor, and, like all hypochondriacs, they become angry if one does not admit their imaginary illness. Their face expresses suffering, and they spend the day under continuous complaints.

(3) *Melancholia cum stupore*.—The highest stage of the period of melancholia in insanity of double form is *melancholia cum stupore*. The patients remain in a state of complete immobility, do not speak a single word, and do not answer questions put to them. This state of stupor is, however, apparent only; in reality the patients continue to think, and to reflect internally, and understand everything going on around them. Apparently strangers to the outer world, they see and hear everything; and when the period of excitement succeeds, they know the slightest details of everything they have seen or heard.

What the patients, once out of this state of stupor, especially complain of, is that time seemed to them to have an excessive length. All the actions they were compelled to perform, assumed, with regard to duration, considerable proportions.

This stupor may be accompanied or even caused by delusions and hallucinations of a frightful nature: one patient believes that she is about to be arrested and sees soldiers enter her room and surround her bed to take her with them; another patient believes herself to be dead or to be in a coffin, she sees phantasms of the dead, smells pestilential odours, &c.

In these different stages of stupor, cataleptiform phenomena or short periods of excitement may be observed; lastly,

there are certain patients who give themselves, automatically and publicly, to unrestrained onanism; and others try to introduce foreign bodies into the urethra.

Physical Symptoms.—These different forms of the period of depression are accompanied by characteristic physical symptoms.

At first the general health is affected by this condition of moral depression, noticeable especially by loss of flesh; the body loses several pounds of weight in a very short time. This falling away is due to the fact that the patients eat little, that digestion is bad, and that altogether nutrition is very low.

All the secretions are diminished, sometimes even entirely suspended, like that of saliva and the tears. Through the absence of perspiration the skin becomes dry and brittle; micturition takes place rarely and the urine is very scanty. In certain cases, however, especially of stupor, the secretion of saliva may be increased; sometimes real salivation is produced which may be temporary only, but it may often last for weeks.

Constipation is, as a rule, present during this period of depression. When patients become stuporose they often become dirty in their habits; whether sitting, standing, or even walking, they will pass their urine and fæces.

Respiration is slow; the number of inspirations is under the normal, and the respiratory movements become imperceptible. A few sighs from time to time suffice for ordinary respiration.

Circulation slackens and the pulse often falls below the normal, to 65, 60, 45, and even to 30 and 25.

This derangement of general circulation explains the existence of certain symptoms: cold in the extremities, which become swollen and bluish; cyanosis of the face; local syncope and local asphyxia of the extremities, &c.

Menstruation requires a special study. In some patients this function does not undergo any change. In others, where the menses are of short duration, menstruation ceases entirely during the period of depression. In some—those who have attacks of insanity of double form of short duration with intermissions—menstruation establishes itself during the intermissions. In cases of monthly attacks (fourteen days of excitement and fourteen days of depression) the menstruation coincides with the period of excitement and causes then recurrence of all the symptoms of that period. Sometimes menstruation is suppressed during the period of excitement

and reappears in the period of melancholia.

General sensibility is diminished or abolished in those patients only who are in a condition of stupor or who present hysterical symptoms. In some cases hyperæsthesia of the internal organs is observed: pricking pains in the epigastrium, precordial anxiety, pressure on the head as of an iron pressing upon one temple to the other; a sense of emptiness in the head, &c.; intercostal neuralgias and pains in the joints.

With regard to the external senses we find in the majority of cases a sort of photophobia; they have an aversion to light and seek the dark. Others present an obscuration of sight and hearing during the period of depression, but these senses regain their acuteness during the period of excitement.

II. Period of Excitement.—Like the period of depression, the period of excitement does not present identical symptoms in all patients labouring under insanity of double form, not even in its different phases in one and the same patient. If some show intellectual excitement only, others on the contrary pass into a state of maniacal agitation and even of actual mania.

We have therefore to describe: (1) mental agitation, (2) maniacal excitement, (3) mania with ideas of exaltation.

(1) *Mental Agitation.*—This condition is very much like that described under the names of *manie sans délire*, *manie raisonnante*, *délire des actes*, &c. M. Jules Falret has given such an exact and vivid description of it, that we cannot do anything better than reproduce it:

“What specially characterises this mental condition (*“Études cliniques sur les maladies mentales et nerveuses,”* Paris, 1890, p. 490) is the general over-excitation of all the faculties, the exaggerated and abnormal activity of sensibility, intellect and will, and also the disorder of conduct without decided derangement of intellect and without incoherency of speech. These patients, indeed, if examined superficially, do not seem to be insane; their speech seems coherent and reasonable; they cause surprise by the activity and fertility of their ideas, by their *esprit* and by their vivid imagination, but equally also by the violence of their sentiments, by their instinctive impulses, and by the disorder and the eccentricity of their actions.

These lunatics move incessantly, and their physical corresponds to their intellectual and moral activity. They get up during the night to go for a walk in

the country; they undertake very long walks and journeys. Their intellect is, as it were, in fermentation, and suggests a thousand undertakings and plans, which often are abandoned as soon as conceived. Their ideas multiply in their mind, and from this rapid production of thoughts results naturally a special disorder, which cannot be compared with the incoherency of mania, but which represents a more irregular succession of ideas than in the normal state.

Memory is over-excited like the other faculties. A number of former ideas arise in the mind, and the patients are themselves astonished with their remembering a great number of often insignificant facts, which they believed to have faded out of their memory a long time ago. They remember long phrases from classical authors, which they learned in their childhood and of which they were able to remember only isolated fragments before their illness. They compose speeches and poems. They speak and write incessantly, and often with a variety of terms and aptness of expression which they did not possess in the normal condition. They chat uninterruptedly and relate stories without end, at the same time giving themselves up to most *bizarre* and eccentric actions. If they are at liberty, they spend their time in paying visits, and stay for whole hours at the houses of their friends or even at those of strangers, and force themselves upon them regardless of good manners and social customs.

Under the influence of their exaltation they become rash and enterprising, often even insolent and rude. They take liberties with persons they meet, and familiarities which were at other times unknown to them. They see nothing shocking and revolting in their own conduct and behaviour towards others, but they themselves are very easily offended by the simplest observations addressed to them. They are, in one word, susceptible, irritable, and disposed to dispute, and even to quarrel on the most futile grounds. Their sentiments and instincts have thus undergone a change at the same time with their over-excited intellect. They have become mischievous, difficult to live with, disposed to do harm, to provoke, and even to play roguish tricks. Their language reflects their new character; it becomes strong. They are often smart and witty in their replies, but mostly very offensive. They grasp with a certain facility the comic side or the faults of those with whom they come into contact, and always choose words which they know to be the most painful to throw in their face. They

invent a thousand stories and lies; they collect all the facts which they hear related, and going from gossip to calumny they depict persons with whom they live in a most false and spiteful manner, giving their stories the appearance of probability. Thus they succeed in creating quarrels and disorder everywhere around them, and in making all social life impossible. One must have lived with such patients to form an idea of the infernal stories they are capable of inventing, and of the mischief they spread over all their surroundings. In short, their sentiments and instincts are wholly transformed by the disease; men, formerly kind and benevolent, become violent, passionate, vindictive, often are led to telling lies and committing robberies, and are cynical in word and action. They acquire faults and vices foreign to their former nature, and which render it impossible to live with them.

It is necessary to insist a little longer on the eccentric actions which the patients commit under the influence of this mental exaltation. Some, to satisfy their restless activity, change every article of furniture in the room; they work in their gardens and uproot their plants and trees; they undertake public work, and in fun turn everything upside down. Others change their lodgings with each period of excitement, and others again make purchases not in accordance with their means, or they enter into all sorts of speculation.

Among the instinctive impulses which more especially characterise this period, Baillarger has classed kleptomania, dipsomania, and nymphomania and satyriasis.

Kleptomania is observed among the greater number of patients suffering from circular insanity, during the period of excitement. They take everything they find, without trying to conceal it, and take the most worthless and useless objects. We knew a patient who was in the habit of thus stealing from her companions, during the stage of excitement, books, toilet-objects, or other knickknacks, so that from time to time a search had to be made in her room, because most of the things were certain to be there, of the disappearance of which other patients complained.

Dipsomania may in some patients be the result of intense thirst; in others, however, it is an instinctive craving manifesting itself with each period of agitation. Hence their tendency, when they are in liberty, to stay for whole days in public-houses, &c.; hence, also, not only their state of drunkenness, but also symptoms of acute and subacute alcoholism.

Eroticism shows itself in various degrees, from simple flirtation to satyriasis and nymphomania. In certain patients the whole interest is confined to a taste for dressing and for society, to display, and to a great desire to marry (*gaménomanie*). In others again this erotic excitement assumes a more marked character: men seek obscene conversation, and everything they see or hear provokes on their part smutty observations; and if they are at liberty they molest every woman with their proposals; some suffer from actual priapism, go with women or give themselves up to unrestrained onanism. In the other sex there is complete loss of all reserve and modesty; well educated women and girls cast amorous glances, use obscene language, assume lascivious postures, and practise masturbation to excess, or throw themselves into the arms of the first-comer.

(2) *Maniacal Excitement with Incoherence*.—In some cases the period of excitement we have described assumes a paroxysmal form, or the character of violence, similar to mania or even to frenzy; but after a few hours', or at most a few days' duration simple intellectual excitement, for the time interrupted, pursues again its course with the usual symptoms.

In other cases more rarely, however, the period of excitement consists entirely of a genuine attack of acute mania. The patients are then for several weeks, sometimes several months, in constant excitement day and night; they jump, shout, run or dance; their hair and clothing are disordered; they tear everything, break the furniture, window-panes, &c.; they undress, take their shoes and stockings off, and run with naked feet in the streets. Their ideas are as disordered as their actions. It is impossible to hold any reasonable conversation with them. They incessantly express the most nonsensical ideas; men think themselves to be God or the devil, women to be the holy virgin, &c.; they do not recognise anybody.

(3) *Mania with Ideas of Exaltation*.—Besides maniacal excitement, we find in some patients ideas of self-satisfaction, exaltation, and wealth. They see everything *couleur de rose*; are infatuated with themselves and capable of the greatest feats; they pretend to be great musicians and poets; they know everything without having learned it. Some are going to be deputies, senators, ministers, &c., others plan great works and gigantic undertakings for their country. Lastly, some think themselves emperors, princes of the royal blood, presidents of the republic, &c.

We find here all the characteristics of exalted delusions, as observed in general paralysis. We may even say that there exists a great similarity between the expansive form of general paralysis and the period of excitement of circular insanity. In both forms there are the same general exaltation, the same constant excess of activity, the same exaggerated sense of personality. The resemblance is often still greater, as we shall see when studying the physical symptoms of this period of excitement in circular insanity.

Before proceeding to study these symptoms it is important to say a few words regarding the external aspect of the patients during this period, their behaviour, manner of dressing, &c. We easily recognise them from among their companions by the oddness and singularity of their costume; women dress in a style which is not at all in accordance with their age or position; or they dress ridiculously, putting their petticoats over their dress, and incessantly put on and take off their underclothing, stockings, and hat; they put up their hair and take it down again; they unstitch their garments only to sew them again, and they add ornaments, as vulgar gold lace, &c.; men turn round their clothing, tuck up their sleeves and trousers, pull off their buttons, and sometimes tear their best clothing into pieces (Ach. Foville).

These patients have also another habit, that of storing up everything that falls in their way, rags, bits of paper and wood, bread-crusts, pieces of bone, &c.; with these they fill their pockets, pocket-handkerchiefs, and drawers. Some collect all these *débris* from a sort of collection-mania, but others utilise them and succeed in manufacturing out of them objects of great art, but always *bizarre*. This mania for filling their pockets with everything they find, although also found in certain forms of dementia, is mostly observed in patients labouring under circular insanity, so that we might say, without exaggeration, that it is sufficient to search the patients, in order to arrive without any outward symptom, at a diagnosis of their affection (J. Falret).

Physical Symptoms.—In this, as in the foregoing period, the physical symptoms are connected with the intellectual and moral phenomena. To this over-excitement of mental life corresponds a kind of exuberance of all the organic functions, the patients themselves being conscious of a sense of general well-being. Thus they never feel the slightest fatigue, in spite of their incessant mobility and the considerable expenditure of force. Appe-

tite is greatly increased; the patients are insatiable and not content with their diet; ask always for more and sometimes steal the food of their companions. There exists, moreover, morbid excitement of the genital organs, of which we have spoken above, acceleration of respiration and of circulation. Under these various influences the patients become stout, the increase in body-weight may amount to as much as four pounds a week.

The most important physical symptoms are from a clinical point of view those mentioned above, which, associated with ideas of exaltation and of self-satisfaction, may cause these patients to be confounded with general paralytics. These symptoms consist in cerebral phenomena of a congestive nature, outward signs of congestion of the head, transitory loss of consciousness, slight convulsive movements and sometimes actual epileptiform attacks, slight embarrassment of speech and temporary hemiplegia, &c. These cerebral symptoms—appearing with greater or less intensity according to the condition of the patient—are generally of short duration; they disappear at the same time with the period of excitement, and rarely appear again at the following period. M. J. Falret observes correctly—and we might quote numerous facts to support his assertion—that these congestive symptoms “appear mostly in the last stages of the disease, and may in some cases be considered as the cause of the often sudden death of these patients, when it takes place during the period of excitement.”

Development of the Disease.—After having described the two periods, one of depression, the other of excitement, which constitute insanity of double form, we have to study how these two periods are connected in order to form an attack, and afterwards it is important to follow the course of the disease from its commencement to its termination.

A. Development of Attack of Insanity of Double Form.—*Commencement.*—With which phase does the attack generally commence? The opinion of authors is much divided on this point, and we must confess that the documents we possess lead to contradictory results. Facts show us that it commences in some patients with the stage of depression, in others with the maniacal phase. We may, however, admit that the usual commencement is with the period of depression rather than that of excitement—that is to say, that the disease itself presents always, or almost always, a more or less prolonged initial stage of melancholia, a fact estab-

lished by Ludwig Meyer and J. Falret. However it be, whether the first attack commences with the period of depression or of excitement, it is rare that its character is modified in the consecutive attacks, even if there are between them long lucid intervals.

There are four different modes of transition from one stage to the other.

(a) *Sudden Transition.*—In a great number of cases the transition is sudden. It usually takes place during sleep, and in the short space of one night a complete change has been brought about. The patient who went to bed as a melancholiac or maniac, wakes up again as a maniac or melancholiac. It has even been observed that this change takes place at a certain hour, which is constantly the same, at one or two o'clock A.M.

Dr. Ph. Chaslin in his thesis, *Du rôle du rêve dans l'évolution du Délire* (Paris, 1887), quotes an interesting case, where the first symptom of transition from one stage into the other was a dream. When the patient passed from excitement into depression she generally had a sad dream, but when she passed from depression into excitement the dream was gay.

This sudden transition from one stage to another may also take place during the daytime, and then, as Krafft-Ebing says, *im Handumdrehen*.

(b) *Gradual Transition.*—In this form of transition we see successively modifications of the symptoms appear, and at last disappearing give way to those of the following period. Thus, a patient who is in the period of depression becomes a little more active than he has been for months, he eats with greater appetite, and answers the questions put to him—in a word, he seems to regain his activity. After the lapse of some more days the patient wakes up more and more, he takes walks and busies himself, but still with a certain slowness. After some weeks the awakening is complete, even too complete, for the excitement is about to appear in all its intensity.

Let us now observe a patient when the excitement is subsiding; the violence in words and actions becomes less, reason begins to assert itself, and the patient has arrived, as J. Falret styles it, “à un état de calme plat,” at a sort of mental equilibrium, which might be compared to the smoothness of the sea between the two tides. Soon this stillness becomes greater and greater, and the mobility so characteristic of the period of excitement gives way to a desire for rest; instead of chatting, seeking society, and paying visits, the patient prefers to be silent and alone.

(c) *Transition in Successive Oscillations.*—This mode of transition, described by J. Falret, consists in alternative approaches of mania and melancholia. Thus, if a patient be placed on the boundary between excitement and depression, before passing definitely into the latter he will pass through successive stages of mania and melancholia of variable duration. One day in excitement he will fall the next day into depression, which will last a few days and then give way again to excitement. It is only after several oscillations of this sort that the period of melancholia definitely establishes itself, and then pursues its usual course.

This kind of transition is rare, but we observe frequently at the commencement of the stage of depression maniacal paroxysms and moments of excitement lasting several hours, especially in the morning, when the patients wake up, and sudden and violent impulses. These are in one word the last sparks of a torch about to be extinguished.

(d) *Lucid Interval between the Two Attacks.*—Falret père and J. Falret have recognised between the two periods a lucid interval of more or less duration. In this case the cycle of the attack of insanity of double form, instead of presenting the character of continuity, would be constituted in the following manner:—

Attack	{	Melancholia.
		Lucid interval.
		Mania.

We cannot deny that there are cases of this sort, but it is of importance to interpret them. If the lucid interval is of short duration—a week or a fortnight, or even a month—we must always ask ourselves whether it is an actual intermission, a complete lucid interval, or whether it is not the decline of the symptoms of the one stage before merging into the opposite one, so as to make the patient appear at the moment reasonable. It seems evident that the latter explanation is in the greater number of cases correct.

If the lucid interval is of long duration, we may no longer consider the periods of melancholia and mania, which it separates, as the two phases of one attack; they constitute alternating attacks of insanity, which might be termed *alternating periodical insanity form*.

Degrees of the Attack.—Two degrees of insanity of double form have been admitted, according to the presence or absence of delirious conceptions. Thus, an attack of insanity of double form of the first degree would be thus constituted:

Attack of the first degree.	{	Period of melancholia.
		Simple mental exaltation.

An attack of the second degree would present itself under the following conditions:

Attack of the second degree	{	Melancholia with delusion, <i>cum stupore, &c.</i>
		Acute mania, incoherently delirious conceptions, &c.

This classification is incomplete, because the number of mixed cases is numerous. In addition to cases in which the two periods are in some way similar, we observe with regard to the degree of the symptoms two other combinations which may be described thus:

(1) Attack of insanity of double form.	{	Simple mental exaltation.
		Melancholia with anxiety, <i>cum stupore, &c.</i>
(2) Attack of insanity of double form.	{	Acute mania.
		Condition of simple melan- cholia.

Duration of the Attack.—The last point to study is that of the duration of the two periods and then of the whole attack. Nothing is more variable than this duration, and this variability does not allow of establishing well-defined categories. The attack of insanity of double form may have a duration of from one day to one year or more, but the most frequent cases are those in which each phase lasts a fortnight, a month, two months, or even six months. Then come the cases of insanity of double form, the periods of which last longer than six months or even a year; lastly, those cases are the most rare in which each phase lasts only two days or a week.

Have the two periods of the same attack always the same duration? Bailarger remarks correctly that the periods are of equal duration in short attacks only. When they are longer it is more rare, and then the period of depression is generally longer than that of excitement.

However great this divergency, it is possible to range all cases in one of the two following categories:

(1) The first category comprises the cases in which the periods are irregular. These are generally the attacks of long duration, those which last less and those which last longer than a year. With regard to those which last just a year, they rank in the following category. The longer period in these cases is, as we have said, that of depression.

(2) The second category comprises all cases with regular periods. They are—*e.g.*, those in which each phase has the duration of one day (*périodes diurnes*), of a week (*périodes hebdomadaires*), of a fortnight (*périodes bi-hebdomadaires*), of a month

(*périodes mensuelles*), &c. Lastly, there is a certain number of cases in which, the attacks being annual, each period has a regular duration of six months. We then see the period of depression coincide with the autumn and winter, and that of excitement with spring and summer, or *vice versa*.

The latter cases, in which the alternations of mania and melancholia take place every six months, have for a long time attracted the attention of observers. In 1764 Casimir Medicus, in his *Traité des maladies périodiques sans fièvre*, quotes an example. Pinel and Esquirol report interesting cases, and we find that instances in which the patients pass half a year in depression, and the other half in excitement, are also at the present day not rare.

B. Development of the Disease.—This comprises the different forms of commencement, course, and the different forms of termination.

1. Commencement of Insanity of Double Form.—It often commences with the period of puberty; sometimes, however, later in life, at a more advanced age, in consequence of divers causes, which we shall enumerate later on (*see* *Ætiology*).

Two different forms of commencement of the disease are admitted. Some maintain that it establishes itself from the first in its definite form, and that it commences with the period of depression. This is unmistakable, even when the disease begins about puberty. But the most frequent mode of commencement seems to be, before the definite constitution of the disease, an attack of periodical insanity with well-marked lucid intervals. Numerous facts seem to prove the correctness of this latter theory, but we have to ask ourselves whether in these cases the second phase of the attack of insanity of double form less intense than that observed has not passed by unperceived.

However this be, it seems beyond doubt that there are two modes of inception of the disease: (1) commencement from the first; (2) commencement with periodical attacks of mania and melancholia.

2. Course of the Disease.—We have now to study how one attack is connected with the other. Insanity of double form has, with regard to its course, two different types; the attacks (mania-melancholia) are separated by longer or shorter lucid intervals or take place without any interruption. We have therefore:

- (1) Insanity of double form with periodical type;
- (2) Insanity of double form with continuous or circular type.

Whether we look at the duration of the intermissions in the former or of the periods of the attack in the latter case, we might make numerous subdivisions, the creation of which only complicates the question. But it is well to make two subdivisions for the former type. Some patients of this category have isolated attacks only, which repeat themselves after longer or shorter lucid intervals; others, however, have each time two, three or four consecutive attacks, before they return into their normal state. The periodical type presents the two following varieties:

- (1) Insanity of double form with periodical type and isolated attacks;
- (2) Insanity of double form with periodical type and combined attacks.

We believe that all cases of insanity of double form find their place in one or the other of the two species which we have just indicated.

3. Modes of Termination.—All varieties of insanity may present four ways of termination:

- (a) Recovery;
- (b) Chronicity, and later on dementia;
- (c) Transformation into another form of mental disease;
- (d) Death.

We shall now examine successively these different modes of termination in insanity of double form in the following order:—

(a) Insanity of double form, being an hereditary and, so to say, a constitutional affection, terminates very rarely in recovery. As in every periodical insanity, the patient recovers from isolated attacks and re-enters the normal state, but unfortunately the slightest moral cause will reproduce the disease. We find, however, cases of complete recovery after one or even two attacks reported, but these are so exceptional that we have to ask ourselves whether those observers who report them have not completely lost sight of their patients. With regard to the circular type, its course may be in some way modified, but it does not terminate in recovery.

(b) Insanity of double form is therefore an essentially chronic disease, usually incurable; but does it unavoidably terminate in dementia? From the observation of cases we are able to conclude that dementia comes on very late, if at all. The number of patients labouring under insanity of double form is great, who, in spite of repeated and continuous attacks, and in spite of the cerebral disturbances which are necessarily the consequence, preserve,

if not the integrity of their faculties, nevertheless a certain intellectual vigour. Thus we see patients in an advanced age, who have passed their life in continuous alternating conditions of excitement and depression, and who nevertheless, when their affection subsides for a short time, show an often strong and sane intelligence, a good memory, and fitness for regular work.

Insanity of double form is therefore one of the small number of mental diseases which may not terminate in dementia, or only after very many years, and even then this dementia is far from being complete.

(c) The third mode of termination of mental diseases is their transformation into another form of insanity. From what we know of insanity of double form, it may terminate in melancholia or in simple mania—that is to say, in one or other phase of the disease which, by its duration and its intensity, at last predominates.

(d) Termination in death is rare in insanity of double form, as in insanity generally. Ach. Foville remarks correctly that “besides the fortunately rare cases of suicide caused by melancholia occurring in insanity of double form, and of serious accidents in consequence of carelessness, the conditions of longevity are not altered by this form of mental disorder.” Death may, however, occur during the period of mania, when the patients are subject to one or other of the cerebral symptoms mentioned above, as cerebral congestions or epileptiform attacks, &c.

Diagnosis.—The first question is: Are there any pathognomonic symptoms which allow of diagnosing insanity of double form with the exclusion of every other mental affection? The actual state of science allows us to make this reply:

The patient may present himself for examination either in the period of melancholia or of mania. The former, as we have seen above, manifests itself under different symptoms; sometimes it consists of simple melancholia, sometimes in delusional melancholia with anxiety or even *cum stupore*. As a fact, these latter affections are seen also in other forms of mental diseases, and therefore are not pathognomonic. There remains, therefore, melancholy depression without marked delusion. This condition is more rarely observed outside insanity of double form, and, when we meet with it, we may be almost certain that the patient examined is suffering from this affection.

If the patient is in the period of excitement, we may find several forms, from simple intellectual and moral exaltation

to acute mania, properly speaking. The more intense degrees of this period as acute mania, exalted ideas, may easily be confounded with other forms of derangement, and are difficult to distinguish from them; but simple mental exaltation with comparative lucidity and predominance of the disorder in patients' actions allows of our making the diagnosis with a high degree of certainty: insanity of double form.

Jules Falret finds also a good help for the diagnosis in the fact that the patients fill their pockets with all sorts of things, as already mentioned.

A second point would be to study whether there are any indications enabling us to foresee the transition from one period into the other, and whether it is possible to diagnose the moment when the transformation is about to take place. There is no general rule about this point, but we have nevertheless some interesting information about it. Marcé (*Traité des Maladies Mentales*, 1862, p. 346) finds that gastric symptoms, as bad digestion or diarrhoea, sometimes signalise the transition from one period into another. Bailarger has observed labial herpes at this stage. One of our patients shows towards the termination of depression actual boulimia; she eats extraordinary quantities of bread, steals the food of her neighbours, and even goes to the dustbin to get the remainders of the meals. It sometimes happens that the patients themselves announce to the physician that their affection is going to change. There are some who are conscious of passing from one state into the other, and implore the physician to prevent them from falling either into depression or excitement.

A third point is that of differential diagnosis of insanity of double form and of general paralysis. We know that this question may arise about an individual in the period of excitement in insanity of double form, and according to the most competent clinical professors this problem is very difficult to solve. There are, however, some distinct indications which may be of some use. The physical symptoms of general paralysis which may be observed in the period of excitement of insanity of double form are, specially, derangement of speech and inequality of pupils. If these symptoms are continuous, or even if they return frequently, we may infer the existence of paralytic insanity; but if they are temporary and return but rarely, temporary cerebral excitement may account for them, as it occurs in the maniacal period of insanity of double form.

As regards intellectual disturbance, we

must remember that in general paralysis the delusions are always absurd, and present all the characteristics of dementia; there is loss of memory and defects in the conception of ideas.

In the maniacal period of insanity of double form, there is, in consequence of the over-excitement of all faculties, incoherency in conversation; the patients pass without connection from one subject to another, and often contradict themselves the next minute; the ideas appear confused, but this cannot be compared to the incoherence of general paralysis.

Some have found a third element of diagnosis in the character of the different patients. General paralytics are, according to Régis, always good-natured, kind, pleasant, &c., whilst patients labouring under insanity of double form are most dangerous, mischievous, perverse, impulsive, &c. This distinction does not appear to us to be so absolute as its author seems to believe. The description which he gives of the characters of these two sorts of patients is pushed a little too far; general paralytics are neither all nor always kind, nor are the patients suffering from insanity of double form all perverse and mischievous. This is, therefore, not such a certain diagnostic element as Régis believes, but it is evident that it deserves to be taken into account.

The course of the disorder, however, throws most light upon the diagnosis. "Only if we know as certain," says Ach. Foville, "that there has been a *repeated* alternation of the periods of mania and melancholia, may we diagnose without hesitation insanity of double form." The "*repeated* alternation" is indeed necessary for a certain diagnosis, for the alternation may take place twice, or even three times, in the course of general paralysis.

Prognosis.—In studying the modes of termination of insanity of double form, we have become acquainted with the seriousness of the prognosis. Already Falret *père* said with regard hereto ("Leçons cliniques de Médecine Mentale," 1854, p. 250):

"It is remarkable that these two varieties of mania and melancholia, which, taken alone, are generally more curable than others, are most serious if united together to form circular insanity. Until now we have seen only more or less notable intermissions in the course of this affection, but never complete recovery nor even lasting improvement." This seriousness of the prognosis is increased by heredity, patient's youth, length of the periods and attacks, &c.

It is, however, important to establish a distinction between insanity of double form of periodical type, and that of circular type. In the former case it may happen that the patients, after an isolated attack, from which they have recovered, have a fresh attack after a very, very long lucid interval; but, as in every periodical insanity, the older the patients become the longer become the attacks and the shorter the intervals. When, however, the morbid circle has been constituted, the incurability is certain, and one may hope for improvement only in the degree of intensity of the attacks, or for the suppression of one of the two periods.

Ætiology.—(I) PREDISPOSING CAUSES.—Predisposition to insanity of double form is either hereditary or acquired. We have, therefore, to study first, heredity, and then among the acquired predisposing causes, cerebral traumatism or falls on the head, hysteria, and epilepsy.

A. Heredity.—All authors who have studied insanity of double form have been compelled to admit that it is an essentially hereditary affection, and Foville rightly affirms that, from the simple fact of well-established insanity of double form, we may presume with some certainty that the mental derangement is due more especially to the development of an hereditary or *congenital* form.

The examination of cases leads also to this conclusion; thus, out of a number of thirty-one cases taken from different sources, we have found only six not showing any trace of inheritance; all the others have among direct or indirect ancestors, either lunatics or persons with nervous diseases, or neurotic, or drunkards. But what incontestably predominates is direct heredity—that is to say, coming from father or mother, or sometimes from both.

It would be interesting to know whether direct heredity is homogeneous, whether insanity of double form is transferred from one generation to the other, and if, lastly, successive generations of patients with circular insanity are produced, as we see in suicidal insanity. There are a certain number of cases which seem to show this. "My father and myself," says Jules Falret (*loc. cit.* p. 610), "have had a rare opportunity of observing in three different families the existence of this form of mental disease, perpetuated through three generations—in the grandmother, mother and daughter—who were successively suffering from the same affection, in the same form; and the more we study this disease, the more we shall become con-

vinced that it is almost always hereditary."

B. Cerebral Traumatism.—Cerebral traumatism and falls on the head may leave behind a sort of morbid diathesis, and cause attacks of insanity of double form independently of any hereditary predisposition. These attacks are, during the period of excitement, characterised especially by the predominance of cerebral symptoms, giddiness, acute pains in the head, cerebral irritation with a feeling of heat in the head, screaming out, hallucinations of vision, &c.

C. Hysteria.—This nervous condition has been for a long time considered a sort of soil prepared for the phenomena of alternation. In these cases the periods of excitement are characterised by the predominance of perverted instincts and mischievous actions.

D. Epilepsy.—Epileptic insanity may itself assume the circular type. In these cases we have to deal with a rather complicated psychosis; the two periods of depression and excitement present most often the character of epileptic insanity; frightful hallucinations, aggressive actions, instantaneous frenzy, amnesia of past actions, &c. If, however, the alternation of the two periods exists as in idiopathic insanity of double form, the soil of the epileptic nervous condition develops peculiar symptoms, and gives to this insanity a special character.

2. **EXCITING CAUSES.**—These are either physical or moral causes.

A. Physical Causes.—Among these we have to include internal diseases, syphilis, and especially the puerperal state. The latter particularly may be considered as one of the most frequent exciting causes of insanity of double form. Besides these more common causes there are menopause, menstrual disturbances, venereal and alcoholic excesses, fatigue, fever complicated by cerebral symptoms, &c.

B. Moral Causes.—We ought to cite here all the moral causes which are given of insanity in general. Many authors believe that most frequently the first attack of insanity of double form is caused by some violent emotion. This assertion, however, is not quite correct, because the disease often commences without any known moral cause. In isolated attacks, however, separated by longer or shorter intervals, the influence of the moral causes might appear sufficiently evident. We might here refer to an interesting observation made by Esquirol ("Des Maladies Mentales," edit. belge, vol. ii. p. 22), in which each attack

—and there were six of them—was preceded by a powerful moral emotion.

Frequency as to sex, age, and as to other forms of insanity.—With regard to sex, Falret père had already affirmed that this disease is more frequent in women than in men. He founds this assertion on a comparison of the patients of the Salpêtrière with those of Bicêtre, without however being able to give exact figures. "In our establishment," he adds, "there are of four patients at the present moment suffering from insanity of double form three women and only one man." Ach. Foville, in his tables of patients at Charenton, published in 1872, mentions nineteen cases of insanity of double form, of which four were men and fifteen women. The statistical returns of the same establishment give for January 1, 1880, seven cases of insanity of double form—one man and six women. It seems, therefore, unquestionable that this disease is much more frequent in women than in men; the proportion seems to be, according to Jules Falret, one man to four or five women.

With regard to age, the cases seem to show that the disease develops very often about puberty; numerous observations relate to patients of from twenty to thirty years of age, whilst the disease is extremely rare in persons of more advanced age.

In consequence of insanity of double form not having been yet accepted by all alienists as a distinct morbid species, we find in their annual medical reports only little statistical information about the degree of frequency of this form of insanity. Of 599 patients of Charenton, Ach. Foville in 1872 mentions 19 cases of insanity of double form, that is to say, 3.4 per cent.

In the medical report of the hospital of Marsens (Switzerland), Girard de Cailleux states that of seventy-five patients of that establishment only one was a case of insanity of double form; that would be 1.26 per cent. In ten years there were among 776 patients (women) who came to Charenton, 33 cases of insanity of double form (4.25 per cent.) (Ritti, *Rapport sur le service médicale de la division des dames pour la période décennale, 1879-1888*, Paris, 1889). July 1, 1890, there were of 322 patients under our treatment 12 cases of insanity of double form (3.72 per cent.). These figures allow us to conclude that there are on the average in the asylum three or four cases of insanity of double form among 100 patients; but we are convinced that there are still more. Many physi-

cians count this sort of patient partly among the maniacs, partly among the melancholiacs. Moreover, because this form of insanity in its two periods does not always present a high degree of intensity, patients of this kind are not always placed in special establishments. Indeed, it is not rare to meet in society persons who, for a week, a month, or even for a quarter of a year, seem under the influence of a slight exaltation, and then fall into a state of depression, which is considered as the reaction of the preceding condition.

Pathological Anatomy.—As for most mental diseases, the pathological anatomy of insanity of double form has still to be worked out. The documents published are exceedingly rare, and only two have come to our knowledge, and these do not give any conclusive results. It is, however, important to quote them. The first has been published by Jules Falret. This eminent alienist, making the autopsy of a patient who had been suffering for long years from circular insanity, found evident lesions of chronic meningitis, (opacity and thickening of the meninges, abundant fluid in the sub-arachnoid space and in the ventricles, &c. &c.); but the brain itself, although much congested, seemed to be in almost its normal state. Wollener (*Neurologisches Centralblatt*, April 1887) has published another case of circular insanity with anatomical-pathological lesions. It was the case of an old woman of 74 years of age, who died in senile marasmus. The microscopical examination of the brain showed thickening of the neuroglia of the grey matter, especially in its deeper layers. In addition, thickening of the small vessels and their union together by bundles of fibres in the middle, and abnormal proliferation of their muscles which were of oval form, and united together in groups of six, eight, twelve, and sometimes as many as 280 to 320, whilst 110 to 150 were observed in the neighbouring tissues which had not been attacked by the pathological process. The whole matter did not present any appreciable changes.

Treatment.—Insanity of double form is, we have seen, a very serious disease, which, in the majority of cases, takes an almost incurable course, and in which we have nothing to hope from treatment except more pronounced and more prolonged remissions.

We must, therefore, the more praise those physicians who have endeavoured to check the evil, and to break the morbid circle in which the unfortunate patients reside.

The treatment of insanity of double form must follow two indications: (1) to prevent the return of the attack; (2) to suppress the symptoms of each period.

(1) To prevent the return of the attack, to fight against the disease itself, means to try to avoid the regular reproduction of the two periods. To effect this one has applied sulphate of quinine, the antiperiodic *par excellence*, and this medicine has proved to be efficient for attacks with very short periods of intermission. With regard to its administration, it has been recognised that the best time for giving it is the period of transition in continuous attacks, or during the intermission, when the attacks are separated by a slight lucid interval. With regard to the dose, one has to begin with from 30 to 40 centigrammes (5-7 grains), increasing it rapidly to 2 grammes (30 grains); the latter dose seems to have had the best results. Legrand de Saule has published an interesting case of insanity of double form with very short attacks and of intermittent type, in which recovery followed the exhibition of quinine.

Haschisch (Brierre de Boismont) has been much extolled, also bromide of potassium (Krafft-Ebing), digitalis, injections of morphia, opium, &c.

All these medicines have for their object the suppression of the periodicity of the attack. It has also been tried to break the chain of attacks by other means. Thus Baillarger has succeeded in suppressing the period of excitement in a patient by cupping her every month, for eight months, in the middle of the interval between the menses. Dittmar, of the asylum at Klingermuenster (Germany), kept the patients in bed during the period of melancholia, and obtained thus a delay of the period of excitement, and diminution of its intensity.

(2) With regard to the means to be employed to suppress the symptoms of each period, there are none that are special besides those applied in melancholia (*see MELANCHOLIA*) and for mania (*see MANIA*).

The most important question is that of sequestration of patients suffering from insanity of double form. It is evident that sequestration is not necessary for those suffering from this disease only slightly, but it becomes a necessity when the patients give themselves during the period of mania to disorderly actions, and make life with them impossible, or expose their fortune and the reputation of their family; or when they show during

the period of melancholia a tendency to suicide or refuse obstinately to take food. But if such a patient is sequestered, another difficulty presents itself, that he wants to be set free during the periods of intermission. "If the lucid intervals are of short duration," remarks J. Falret, very ably, "the patients must evidently be kept in the asylum. But if the lucid interval lasts several months or even several years, we are obliged to restore them to their family in spite of the serious inconvenience which may result from it; and we must be guided by the knowledge of previous attacks, and of the divers phases which the disease has passed through up to the moment when we were called to observe the patient."

Forensic Medicine.—Laws with regard to insanity of double form have still to be made. But there may nevertheless be circumstances in which the physician would have to intervene either with regard to the responsibility or capability of a patient suffering from insanity of double form. And in fact we know from the symptomatology that the patients may, during the period of excitement, commit actions of all kinds. All sorts of robberies, unjust accusations, gross libels against persons who have rendered them great services; others may damage their fortune or the reputation of their families, making inconsiderate purchases, contracts of sale, hazardous speculations, even wills, &c. It might then be necessary to insist upon interdiction of these patients.

What is in these medico-legal questions the rôle of the physician? In insanity of double form the expert will find in the symptoms, and especially in the course of the affection, the best means of giving evidence before the magistrate. If an act has been committed at the commencement of the attack, when the disease is not yet well defined, or even at the moment of transition between the two periods of an attack, and if the patient does not present any symptoms of insanity, and seems to have recovered, a sort of equilibrium having established itself, the knowledge of the course of the disease will allow of replying in a decided manner; in the former case, the physician is able to affirm that insanity will show itself again in its two phases; in the latter, that the patient far from having recovered, will enter into a new period of his affection, and the subsequent event will justify the prognosis. The questions relating to insanity of double form demand, as we see, much clinical sagacity, and we must acknowledge that practice alone gives us the ability to understand

the varieties which each particular case may present.

ANT. RITTI.

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CIRCUMSPECTION (*circum*, around; *specto*, I look at). A capacity of foresight, caution, or wariness existing in men and animals, and more or less developed in different species, races, and individuals. (Gall.) (Fr. *circonspection*; Ger. *Behutsamkeit*. *Vorsicht*.)

CITTOSSIS (*κίτσα*, a longing after strange food). A synonym of *Pica*; depraved appetite.

CIVILISATION AND INSANITY. (See STATISTICS OF INSANITY.)

CIVIL PROCEDURE IN RELATION TO LUNACY.—This subject is too technical in its character to be discussed with propriety in such a work as the present. It may be observed, however, generally, that a lunatic *sues* by his committee or by his next friend, according as he has or has not been found lunatic by inquisition; and *defends* by his committee, if found lunatic, and, if not found lunatic, by a guardian *ad litem* appointed by the Chancery Division.

Cf. "Annual Practice," 1890-1891 (R.S.C. 1883, Ord. 16, rule 17), where all the more recent cases are noted.

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CLAIRVOYANCE (Fr. *clair*, plainly; *voir*, to see). A term for the supposed condition of a person subjected to animal magnetism, in which it is said he can with his mind's eye see every detail of a person or object he has never seen before, or minutely describe localities in which he has never been. (Ger. *Hellsichtigkeit*. *Hellseherei*.)

CLASSIFICATION.—The wit of man has rarely been more exercised than in the attempt to classify the morbid mental phenomena covered by the term insanity. The result has been disappointing.

In the first place the pure psychologist has rendered little aid to the physician, nay, has rather tended to darken counsel and lead him into the wrong track, from which he has taken a long period to extricate himself.

Physiological and Pathological.—When Gall made a protest against the subtle errors of the metaphysicians and strove to base mental upon cerebral disease, followed as he was by Spurzheim, whose work on insanity owes whatever merit it possesses to the central truth of the brain being the organ of the mind, he took an impregnable position which was unfortunately obscured by the errors of the phrenological school. It is worth observing in this connection that Dr. Conolly in England, and Dr. W. A. F. Browne in Scotland, acknowledged their indebtedness to the system of Gall in strong terms—going even so far as to favour the phrenological localisation of the mental faculties.

The attempt to base a classification upon the changes found in the brain in different forms of mental disease was the logical consequence of the fundamental proposition that the brain is a complex organ subserving the various mental functions. Among others Parchappe endeavoured to establish a pathological classification, but the result showed that our knowledge is too limited to allow of this principle being adopted. The French alienist proposed the following divisions: Monomania, acute mania and melancholia; insanity with paralysis; insanity with epilepsy; chronic insanity. After him his compatriot, Dr. Aug. Voisin proposed one from the same point of view.

The latest attempt of importance in this direction is Meynert's grouping. He gives—

(1) The clinical forms which arise from

anatomical changes caused by injury to the skull and brain during pregnancy, parturition, or infancy (idiocy, deaf-mutism, &c.); those which arise from changes caused by focal or coarse brain disease, as tumours, hæmorrhages, sclerosis, and syphilis (delirium, paralysis, organic dementia, &c.); thirdly, those caused by diffused changes, as atrophy, hypertrophy, and meningitis (senile dementia, epilepsy, general paralysis, &c.).

(2) Disorders of nutrition, involving cortical excitement (mania, melancholia, exalted ideas, &c.), or sub-cortical localised irritation and feebleness (delusion, hallucinations, mental stupor, hypochondriasis, hysteria, partial insanity [*Partieller Wahnsinn*], persecution-mania; disorders of the sub-cortical vascular centres (epilepsy, hystero-epilepsy, circular insanity, ascending paralysis, goître, &c.).

(3) The last group comprises "intoxications."*

One of Laycock's classifications was entirely based upon the physiology of the brain. His first class included disorders of encephalic centres subservient to the instincts and animal propensities—*i.e.*, the medulla oblongata, cerebellum, and posterior lobes of the hemispheres; the second comprised the centres subservient to the emotions and sentiments—*i.e.*, the ideagenic or sensorial substances of the cerebellum and hemispheres; the third those subservient to the knowing and representative faculties (intellect)—*i.e.*, the nerves of the senses, their ganglia, and the ideational centres in the cerebral (and cerebellar?) hemispheres.

The writer has already expressed his opinion that if the student studies the classification of mental disorders from the standpoint now under consideration, he may regard them as divisible according as they arise from such defect or disease of (1) the highest cerebral centres as induces idiocy, dementia, &c.; with or without disease of (2) the sensory centres, ganglia or nerves, causing hallucinations and illusions; and with or without disease of (3) motor centres, ganglia or nerves, as exhibited in general paralysis and post-apoplectic insanity. Or if we endeavour to adapt our classification more nearly to the views arising out of Ferrier's discoveries, we should have to regard not one part of the brain as the organ of the mind, and another part as an organ of motion, &c., but the same parts as having both a subjective and objective function; physiological and psychological functions of the

brain being, on this hypothesis, only different aspects of the same anatomical substrata. It is in harmony with the endeavour to reduce mental phenomena, in the last analysis, to their motor and sensory physiological equivalents, as leading the way to localisation of mental function, and therefore to the correlation of morbid cerebral and morbid mental conditions, out of which a classification may be possible. Mental disorders might, from this point of view, be simply classified under two instead of three great divisions—sensory psychoses and motor psychoses. Included in the former would be all forms of insanity in which feeling and emotion and the powers of sensory perception and ideation are more particularly involved (hallucinations and conduct determined thereby), the posterior parts of the brain, as experiments seem to show, being the centres; while the latter would comprise those forms in which the higher intellectual faculties are affected as also motor power, the anterior lobes, here, being in all probability, the centres.*

Symptomatological.—Any sketch, however brief, of the classifications of insanity, must include those of Pinel, Esquirol and Cullen. All were symptomatological.

Pinel was content with four divisions—mania, melancholia, dementia, and idiotism. What is remarkable in his writings is that he recognised a form of mania without delirium, that is to say, without disorder of the intellect. It is necessary to state that he understood by melancholia a delirium which is exclusively directed upon one object, or series of objects, accompanied by sadness. Again, dementia corresponded to the present use of the term, although he considered its advanced stage as idiotism. His pupil, Esquirol, made some change in Pinel's classification, and gave five divisions of insanity, namely:—

1. *Lypemania* is a disorder of the faculties with respect to one, or a small number of objects, with predominance of a sorrowful and depressing feeling.

2. *Monomania*, in which the disorder of the faculties is also limited to one or a small number of objects, with excitement and predominance of a gay and expansive feeling.

3. *Mania*, in which the insanity extends to all kinds of objects, and is accompanied by excitement.

4. *Dementia*, in which insane persons utter folly, because the organs of thought

* For the entire scheme, see "Psychiatric, Klinik der Erkrankungen des Vorderhirns," p. 281. Wein, 1884.

* The same views are expressed in the "Manual of Psychological Medicine," 4th edit., 1879.

have lost their energy and the strength requisite for their functions.

5. *Imbecility* or *Idiocy*, in which the conformation of the organs has never been such that those who are thus afflicted can reason justly.

Thus Esquirol advanced beyond his master in distinguishing properly between dementia and idiocy. The terms lypemania and monomania were introduced by him.

It remains to be stated that Cullen endeavoured to seize the essential symptoms of the disease. He failed when he refined upon the broad divisions he marked out. Pinel wrote in contemptuous terms of his classification, and asks: "The vain explanation and gratuitous theories which Cullen gives respecting observed facts, by way of unravelling their mechanism, are they not opposed to the dignified and cautious course which a faithful historian of mental disorders ought to impose upon himself?" Mental disorders were called neuroses, and they were placed under the order of *vesaniæ*, in which it was desired to include those disorders in which the judgment is impaired, without coma or pyrexia. He referred them to four great divisions—viz., *amentia*, *melancholia*, *mania*, and *oneirodina*. *Amentia* might be either congenital, senile, or acquired. *Melancholia* included eight principal varieties; some involving hallucinations of a painful, others of a pleasurable nature, other varieties being *demonomania*, *nostalgia*, and *erotomania*. *Mania*, equivalent to *insania universalis*, was divided into three subdivisions, according as the cause appeared to be mental, corporeal, or obscure. *Somnambulism* and *nightmare* were included under *oneirodina*, the last of his divisions.

The German school of psychiatry was long since split up into the psychical and somatic divisions. The former was represented by Heinroth, Ideler, and Hoffbauer. The classification of Heinroth was **Psychological**, and rested upon the threefold analysis of the mind into the intellectual faculties, the moral dispositions, and the will, including in this the propensities. Altogether antagonistic to the psychical was the **Somatic School**, represented by the distinguished names of Max Jacobi, Nasse, and Friedreich. The first named asserted that the ordinary forms of mental disorder are really nothing more than symptoms which indicated the presence of a lesion of some bodily organ. In 1830 Jacobi enunciated the broad **Somato-ætiological** theory, "That there is no disease of the mind existing as such, but that insanity exists

solely as the consequence of disease, either functional or organic, in some parts of the bodily system." His groups were those of insanity without delusion, the disturbance of the intellectual powers being slight; those of insanity with delirium or incoherence, without delusion; and thirdly, those of insanity with delusions. A disciple of the same school, Flemming, introduced a table in which the somatic element was distinctly recognised, and the germ of a somato-ætiological classification which, with the "somatisch-psychische" doctrines of Jacobi, forecast the advent of more complex nosological systems. Our own Arnold had really anticipated this departure from the ordinary method of classifying mental disorders. "When the science of causes shall be complete, we may then make them the basis of our classifications, but till then we ought to content ourselves with an arrangement according to symptoms" ("Obs. on the Nature of Insanity," 1806). In 1822, Dr. Prichard wrote: "I cannot conceive anything more preposterously absurd than the attempt to classify diseases with all the divisions and technology of a botanical or zoological system, and to force what is essentially disorder and confusion to assume the appearance of that order and symmetry which nature displays in the arrangement of the organised world. An ætiological classification is the only mode of terminology and arrangement that can be of any practical advantage, and this is all that we have to consult" ("Diseases of the Nervous System," p. 79). It is a remarkable fact that his own classification was psychological, and grouped moral insanity or pathomania under one class, and intellectual insanity, comprising monomania, mania, incoherence or dementia, under the second class.

To some extent Belhomme in 1834 followed on the somatic track, and Schr. v. d. Kolk in 1852 propounded a classification which was largely coloured with the principle of causation. Thus he describes a sympathetic mania or melancholia proceeding from the colon, melancholia proceeding from the sexual apparatus, mania from the kidneys and bladder, mania from disorder of the heart and lungs, and so forth. But all these attempts were outstripped by the classifications of Morel in 1860, and Skae in 1863. The former gave six great groups of mental disorders:—(1) *Hereditary Insanity*. (2) *Toxic Insanity*. (3) *Insanity produced by the Transformation of other diseases*. (4) *Idiopathic Insanity*. (5) *Sympathetic Insanity*. (6) *Dementia*, a terminative state.

Dr. Skae, who maintained that the

basis of his classification was essentially, although not entirely, an ætiological one, proposed one, which, with some slight modifications, has been adopted by his pupil, Dr. Clouston. It is as follows:—

(1) General Paralysis. (2) Paralytic Insanity (Organic Dementia). (3) Traumatic Insanity. (4) Epileptic Insanity. (5) Syphilitic Insanity. (6) Alcoholic and Toxic Insanity. (7) Rheumatic and Choreic Insanity. (8) Gouty (Podagrous) Insanity. (9) Phthisical Insanity. (10) Uterine Insanity. (11) Ovarian Insanity. (12) Hysterical Insanity. (13) Masturbatory Insanity. (14) Puerperal Insanity. (15) Lactational Insanity. (16) Insanity of Pregnancy. (17) Insanity of Puberty and Adolescence. (18) Climacteric Insanity. (19) Senile Insanity.

To these are added some rare varieties:—

(1) Anæmic Insanity. (2) Diabetic Insanity. (3) Insanity from Bright's Disease. (4) The Insanity of Oxaluria and Phosphaturia. (5) Insanity of Cyanosis from Bronchitis, Cardiac Disease, and Asthma. (6) Metastatic. (7) Post-Febrile Insanity. (8) Insanity from Deprivation of the Senses. (9) The Insanity of Myxœdema. (10) The Insanity of Exophthalmic Goitre. (11) The Delirium of Young Children. (12) The Insanity of Lead Poisoning. (13) Post-Connubial Insanity. (14) The Pseudo-Insanity of Somnambulism.

Dr. Clouston gives also his own symptomatological classification:—

1. States of Mental Depression (*Melancholia, Psychalgia*):—(a) Simple Melancholia. (b) Hypochondriacal Melancholia. (c) Delusional Melancholia. (d) Excited Melancholia. (e) Resistive (obstinate) Melancholia. (f) Convulsive Melancholia. (g) Organic Melancholia. (h) Suicidal and Homicidal Melancholia.

2. States of Mental Exaltation (*Mania Psychlampsia*):—(a) Simple Mania. (b) Acute Mania. (c) Delusional Mania. (d) Chronic Mania. (e) Ephemeral Mania (*Mania Transitoria*). (f) Homicidal Mania.

3. States of Regularly Alternating Mental Conditions (*Folie Circulaire, Psycho-rhythm, Folie à Double Forme, Circular Insanity, Periodic Mania, Recurrent Mania, Katatonia*).

4. States of Fixed and Limited Delusion (*Monomania, Monopsychosis*):—(a) Monomania of Pride and Grandeur. (b) Monomania of Unseen Agency. (c) Monomania of Suspicion.

5. States of Mental Enfeeblement (*Dementia and Amentia, Psychoparesis, Congenital Imbecility, Idiocy*):—(a) Secondary

(Ordinary) Dementia, following *Mania and Melancholia*. (b) Primary Enfeeblement (Imbecility, Idiocy, Cretinism) the result of *Deficient Brain Development, or of Brain Disease in very early life*. (c) Senile Dementia. (d) Organic Dementia, the result of *gross Organic Brain Disease*.

6. States of Mental Stupor (*Stupor, Psychocoma*). (a) Melancholic Stupor, "*Melancholia Attonita*." (b) Anergic Stupor, "*Primary Dementia*," "*Dementia Attonita*." (c) Secondary Stupor, *transitory after Acute Mania*.

7. States of Defective Inhibition (*Psychokinesia, Hyperkinesia, Impulsive Insanity, Volitional Insanity, Uncontrollable Impulse, Insanity without Delusion*):—(a) General Impulsiveness. (b) Epileptiform Impulse. (c) Animal, Sexual, and Organic Impulse. (d) Homicidal Impulse. (e) Suicidal Impulse. (f) Destructive Impulse. (g) Dipsomania. (h) Kleptomania. (i) Pyromania. (k) Moral Insanity.

8. The Insane Diathesis (*Psychoneurosis, Neurosis Insana, Neurosis Spasmodica*).

There can be no doubt that the most practical and simplest classification based on the mental condition of the patient, consists of the above three groups, long ago adopted by Griesinger, namely: States of (1) mental depression, or melancholia; (2) mental exaltation, and (3) mental weakness. With these threefold divisions he associated emotional and intellectual disorders, in the latter of which he included the will. This psychologist has observed that all classifications of mental disease must in the end return to the principal forms of insanity, mania (whether acute or chronic), melancholia, and dementia, "because they are really founded on Nature."

An elaborate classification has been proposed by Dr. Bucknill, the novelty of which consists in "The combination of psychical characters of phenomena with pathogenetic relations and pathological conditions; the first forming the classes, the second the orders and genera, and the third the species. ("A Manual of Psychological Medicine," by J. C. Bucknill and D. H. Tuke, 4th edition, pp. 793-795.)

At the Congress of Mental Medicine held at Antwerp in 1885, a Commission was appointed at the instance of M. Lefebvre to consider the existing mental classifications, and to suggest an improved one, which the various associations of alienists could unite in adopting. The result of this movement has been to bring together a considerable number of the classifications employed in different countries at the present time, but the prospect of union cannot be said to be hopeful,

although at the Paris Congress of 1889, a classification was cordially adopted, as follows:—(1) Mania (comprising Acute Delirious Mania); (2) Melancholia; (3) Periodical Insanity; (4) Progressive Systematic Insanity; (5) Dementia; (6) Organic and Senile Dementia; (7) General Paralysis; (8) Insane Neurosis (Hysteria, Epilepsy, Hypochondriasis, &c.); (9) Toxic Insanity; (10) Moral and Impulsive Insanity; (11) Idiocy, &c.

To M. Morel (Gand) is due the credit of drawing up this classification for the adoption of the Congress. It has yet to be seen whether asylum physicians will adopt it in their tables.

It remains to add the classification which is in use by the medical superintendents of the asylums of Great Britain as determined by the Statistical Committee of the Medico-Psychological Association:—

1. Congenital or Infantile Mental Deficiency: (a) with Epilepsy, (b) without Epilepsy; 2. Epilepsy (acquired); 3. General Paralysis of the Insane; 4. Mania—Recent, Chronic, Recurrent, A Potu, Puerperal, Senile; 5. Melancholia—Recent, Chronic, Recurrent, Puerperal, Senile; 6. Dementia—Primary, Secondary, Senile, Organic (*i.e.*, from tumours, coarse brain disease); 7. Delusional Insanity; 8. Moral Insanity.

The last two forms were originally stated to be optional, but as they have been frequently adopted in asylum reports, they are now placed on the same footing as the other forms.

At a conference (under the Presidency of Pliny Earle) of American alienists on the classification of mental diseases, held at Saratoga, New York, September 1886, a similar classification to the above was adopted, with the addition of "Toxic Insanity," and the omission of "Moral Insanity."

For ourselves we should supplement the classification of the Medico-Psychological Association by the addition of mental stupor, with and without melancholia; circular insanity; and add to mania and melancholia, the varieties, hysterical and hypochondriacal.

Every one acknowledges that heredity is the great predisposing cause of insanity, but it is difficult to separate it or the insane diathesis from other forms of mental disorder, because so many of these can, on careful examination, be traced back to hereditary and constitutional causes. We should recognise:

(1) Insanity, or mental defect caused by primary disease or defective development of the encephalic centres, namely, con-

genital deficiency or arrest of cerebral development in infancy. Traumatic insanity, general paralysis, insanity associated with cerebral hæmorrhage, tumours, &c. Epileptic insanity when of centric origin. Senile insanity.

The congenital, infantile, and senile brain-states or changes included in the above class, may be subdivided, as being developmental in their character, and properly regarded along with certain forms in the subsequent class, *viz.*, pubescent, adolescent, and climacteric insanity.

(2) A second class would comprise insanity caused directly or indirectly by disorders of, or changes occurring in, the generative system:—Pubescent insanity, masturbatic insanity, insanity arising from affections of the uterus, pregnancy, delivery, lactation, and from the great climacteric.

(3) A third class would include insanity immediately induced by alcohol and other poisons (toxic forms):—Alcoholic insanity, pellagrous insanity, cretinism, myxœdema (?).

(4) A fourth class would comprise mental disorders arising out of certain bodily diseases as:—Post-febrile insanity, rheumatic and gouty insanity, tubercular insanity, syphilitic insanity.

Under this group would fall those cases in which the mental disorder replaces the physical one, as in gout, asthma, &c. (Metastasis).

We must, however, guard ourselves from being supposed to admit these various mental affections as distinct pathological forms or entities. Some of them may be so, but others are put forward only tentatively.

THE EDITOR.

CLAUSTROPHOBIA (*claustra*, a bolt; *phóbos*, fear). A name given by Raggi to a mental affection in which the patient cannot bear, without great distress of mind and body, to be in any closed space or chamber. (See AGORAPHOBIA and its allied conditions, AMAXOPHOBIA AND BATOPHOBIA, and also IMPERATIVE IDEAS.)

CLAVUS HYSTERICUS (*clavus*, a nail; *hystericus*, pertaining to hysteria). A pain felt in some single point of the head, as if a nail were being driven into the part. It differs from ordinary neuralgia in being confined to one spot, either in the frontal, occipital, or temporal region, but also, and, according to some, most frequently, in the vertical. The pain is of a sharp stabbing or boring character, and though most commonly a functional affection, may occur in anæmic persons not suffering from Hysteria. (Fr. *clou hystérique*.)

CLEPTOMANIA (*See* KLEPTOMANIA).

CLETHROPHOBIA (κλήθρον, a bolt; φόβος, fear). A synonym of Claustrophobia.

CLIMACTERIC INSANITY (κλιμακτήριον, the step of a ladder; *in*, neg.; *sanus*, sound).—The correlations of the sexual functions and nervous phenomena in the female are too common and too striking not to have attracted attention at all times; but, it may be confidently affirmed, that it is only within quite recent years that we have had adequate knowledge to enable us to discuss the problem arising out of these relations, with scientific precision. Gynæcology, and our knowledge of the anatomy and physiology of the nervous system, have advanced, if not *pari passu*, at any rate concurrently, so that now we have the clearer and reciprocal light shed by better knowledge of the two main factors to aid in our researches.

It may be stated *in limine* that the association of nervous disorders with disease or disordered functions of sexual organs is extremely frequent; and if this association is not more frequently recognised by gynæcological and psychological specialists, it is because the perceptive faculties of the specialist are too often blind to objects outside the immediate range of his research.

When a case of nervous disorder, complicated with disorder of the sexual system comes before us, three questions arise: (1) Did the sexual disorder declare itself first? (2) Did the nervous disorder declare itself first? (3) What are the mutual reactions of these two disorders? And if we trace antecedence of the sexual disorder, can the nervous disorder be traced to the sexual as a cause?

Then another question, one that has to be considered in every case of insanity, arises: Is there a predisposing cause, as heredity? It is a gross error to assume that heredity is a necessary factor; and even admitting that it is, the true clinical physician will not the less reflect that this or other predisposing cause might have remained latent or unknown until worked upon by the immediate or evoking cause; or, excluding heredity, are we driven to the alternative provisional conclusion that the complication is simply an accidental association? It must be granted that no satisfactory solution can be attained without bringing to the inquiry thorough all-round diagnostic skill. Even if not directly causative, serious sexual disorder cannot fail to be an aggravating factor of the nervous disorder.

The epoch of severest trial is the climacteric or menopause. Arrived at this

epoch, the subject has been tried in many ways; she may be less able to resist the more or less abrupt cessation of a periodical motor and governing function. Few women probably go through the reproductive era without some nervous trouble. They labour under painful dangerous tension, often concealing their distress, but sometimes on the verge of breaking down.

Dr. Tilt emphasises the danger of marriage at the climacteric, and relates the history of an intelligent woman who married at fifty. The consequence was that she had sudden uterine pains, followed by flooding. She became melancholic and bent on suicide. When menstruation ceased she got well.

Symptoms.—The delusion known as *pseudo-cyesis*, chiefly arises during or after the climacteric. Just when the reproductive faculty has disappeared under the aberrant nervous freaks which mark the menopause, the woman eager to retain the parting proof of motherhood, construes every sensation and symptom as evidence of that state which she hopes may exist. The first hope is sometimes clung to by women otherwise sensible enough, beyond the natural term of gestation and in spite of skilled opinions based upon strict objective examination. In some cases, however, the delusion merges into insanity; the subject being proof against all reasoning and probability, asserts her conviction with such confidence and tenacity as to impose even upon others. The celebrated case of Joanna Southcote is one of the kind. The delusion of an insane woman was strong enough to evoke the madness of fanaticism in others. A remarkable instance of pseudo-cyesis symptomatic of insanity is related by Sir Crichton Browne. The woman not only could not be shaken in her belief that she was pregnant, but even went so far when the calculated time was up as to fall into simulated labour, which caused a sanguineous discharge—a striking example of the force of imagination directed to a particular organ.

We must not forget, however, that pseudo-cyesis is not limited to the climacteric. Young women who have incurred the risk, under the influence of fear or hope, not seldom persuade themselves that they are pregnant. I have been consulted in cases where, without any motive to deceive, recently married young women were firmly convinced that they were pregnant, rejecting medical opinions, and at last yielding reluctantly to the decision of time. Not seldom, menstruation is suspended under the emotions and

other changes attending married life, although there be no conception, thus lending seeming evidence of the false conclusion.

In some cases of delusive pregnancy there is abdominal or pelvic disease, as ovarian tumours, fibroid of the uterus, ascites, or malignant disease. In such cases the subjective signs are enforced by objective signs, and, for a time, the physician as well as the patient may be deceived. This possibility is another reason for subjecting the patient to complete physical examination. An intra-uterine polypus may for a time closely simulate pregnancy.

Melancholia is the most common form of climacteric insanity. Sometimes the erotic form is marked. In some of these there is uterine disease, as epithelioma or chronic endometritis; but in other cases no lesion can be discovered.

Disorder of the central nervous system is frequent in various forms and degrees. In one case—age fifty-two—there was loss of memory, at times aphonia, syncope attacks, sleeplessness and restlessness; the patient was very stout. In another—age forty-seven—there was giddiness, mental disturbance “as if she would lose her senses,” and loss of power of left arm, side, and leg. These symptoms would recur at intervals of one or two weeks. This symptom of quasi-hemiplegia is frequent at the menopause, and is often attended by vertigo.

The following case (R., aged fifty-four) shows the association of epilepsy. Had eleven children and two abortions. The uterus was in a state of senile atrophy. Had a first fit of epilepsy when fifty-four. She fell, was found insensible, and with frothing at the mouth. She does not go out alone, trembles all over, beginning in the stomach, “sense of vertigo,” but does not go off. In extreme cases, suicidal tendency is marked. The above are typical examples of conditions sometimes premonitory of pronounced insanity. One failing at the climacteric is the tendency to indulge in drink. Sometimes this goes on more or less in secret; hints in the way of caution, of remonstrances, are repelled with indignation, falsehoods and morose obstinacy, merging into insanity.

Treatment.—With regard to treatment, where the subjects are plethoric, occasional venesection or cupping—howsoever strange bleeding may appear to those who have never witnessed the effect—or a seton on the arm is sometimes strikingly beneficial, even conservative. The action is explained on the theory of derivation

from the nervous centres, and of regulation of the circulation. At the same time careful attention to diet and the visceral functions must be enforced. As medicines, the most useful are digitalis, bromide of potassium, and diphosphate of zinc.

Doubtless many of the cases of climacteric insanity find their way to asylums for the insane without the advice of the gynæcological physician having been sought. In fact, the connection between the mental symptoms and the change of life may not have been suspected by the patient's friends. Mental physicians see, therefore, a larger proportion of cases of actually developed insanity occurring in women at or about the time of the menopause.

Age.—Dr. Clouston gives the ages in quinquennial periods of 228 cases of climacteric insanity, which include 32 males. The majority of the females were between 40 and 50 years of age (155), the majority of the men being between 55 and 65. Only 13 of the men and 56 of the women, or 18 per cent. of the whole, were acute in character. It is essentially, therefore, a sub-acute psychosis in its general character. Of the whole, only 82 were cases of mania, the remaining 146 being melancholiacs. At least one half of the patients showed suicidal intent, but few of them made very serious or desperate attempts to take away their lives. There was a high proportion, but a low intensity of suicidal impulse. The above cases were admitted into the Royal Asylum, Edinburgh, during nine years, and constituted 7 per cent. of the total admissions.*

As will be seen from the above figures, the “grand climacteric” in man falls at a later period than in women; it has not so well marked a set of symptoms. “The abnormal mental changes that are seen in some cases at the climacteric period in men, are the same, in general type, as in

* Dr. Merson has given the statistics of the Wakefield Asylum in regard to climacteric insanity during four years, and found that as regards the proneness to insanity in women at different ages, the period from 40 to 55 gave the highest ratio to the number of persons living at that age. It is not to be concluded that this is altogether due to causes connected with the change of life; but as there is a sudden fall in the proportion of attacks after the age of 55, the inference is reasonable. It is consistent with this position, that the climacteric factor was not the only or immediately exciting cause, but only the predisposing one, the attack being determined by some other influence, as domestic trouble, intemperance, &c. The latter is no doubt a symptom rather than a cause. (See “The West Riding Lunatic Asylum Medical Reports,” vol. vi. p. 85.)

women. The spontaneity, the courage, the mental aggressiveness, the necessity to energise actively, the poetic sentiment, the keenness of feeling in all directions, all these are impaired. The sleep is less sound and shorter. A cloud of vague depression rests on the man, who shuns society, falls off in fat, becomes restless and hypochondriacal, and feels strongly the *tedium vitæ*. This may go on to suicidal longings and desires, which are usually not very intense. In fact, nothing is intense with the man. His energies, his functions, and his vitality have all been lowered. With this there is no *athetoma*, *arcus senilis*, or proper senility" (Clouston, "Mental Diseases," p. 560).

Prognosis.—Of the 228 cases of climacteric insanity in both sexes, 53 per cent. of them recovered, the proportion of recoveries being greater among the latter than the former. The reverse was true of the mortality, 12 per cent. of the men and 9 per cent. of the women having died up to date of Dr. Clouston's return.

R. BARNES.

CLITORIDECTOMY. (See NYPHOMANIA.)

CLONIC SPASM (*κλόνος*, commotion; *σπασμός*, from *σπάω*, I draw). A term applied to spasms, of which the contractions and relaxations of the muscles are irregularly alternate and involuntary; such are the spasmodic chronic contractions of epilepsy.

CLONOS (*κλόνος*, violent irregular motion). A tumultuous movement. A term formerly applied to the convulsive movements in epilepsy.

CLOPEMANIA (*κλοπή*, theft; *μανία*, madness.) A synonym of Kleptomania. Also spelled klopomania.

CLOTHING MATERIAL. (See DRESS.)

COCA. (See COCOMANIA.)

COCOMANIA (Syn. Cocaine-habit, Cocainisme, Cocainsucht, Cocainismus).—Cocomania was first described in May 1886 by the writer. This first report on cocomania, which was founded on thirteen cases, completely exhausted the subject, and nothing essential has been added to the symptomatology then published.

There are two forms of cocomania—one in which only cocaine, the other, in which cocaine and morphia together, have been introduced into the organism. Either of these forms originates in morphia. We do not mean to say that this origin in morphia is a direct one, and takes place without temporary interruption, but we would say in general that in cocomania, morphia plays a certain part. The development of cocomania is simple, and

takes place in the following manner:—A person suffering from chronic morphia poisoning begins alone or under medical direction to discontinue taking morphia with the help of cocaine. This undertaking is never successful. At the best he gets rid of morphia, but he certainly is then a slave to cocaine. He has cast out the devil by Beelzebub. Cocaine now shows its effect, which, analogous to that of morphia, can be called euphoric; the duration of this effect is very short, and the dose has soon to be increased in consequence. If morphia and cocaine be taken at the same time, the effect of morphia soon disappears, and from this also results the necessity of increasing the dose of cocaine. A voluntary giving up of cocaine is no longer possible, because the patient is kept up by it and breaks down without it. He has to continue to take cocaine, mostly in subcutaneous injections, and soon its destructive influence on body and mind begins to show itself. To escape this he takes his refuge again in morphia, and takes it together with cocaine. A patient who thus suffers from morphia and cocaine poisoning, increases the doses of morphia to an extraordinary degree, and takes to chloral, opium and alcohol. Daily doses of one or two grams of morphia, together with one to three grams of cocaine, or even added to this some grams of chloral hydrate at night, are of common occurrence.

Symptoms.—In discussing the symptoms of cocomania, we shall treat the symptoms of intoxication separately from those of abstinence, as being of by far greater importance than the latter. We have first of all proved by sphygmographic investigations that in patients suffering from morphia poisoning cocaine produces paralysis of the vessels; it increases the frequency of the pulse, weakens the arterial vascular system, and produces disturbance of respiration and sweating. Vasomotor and respiratory disturbances of various kinds, among which fainting fits are frequent, are prominent symptoms of intoxication. It is very dangerous to administer chloroform to persons suffering from cocaine poisoning. As soon as cocaine is taken in larger doses rapid emaciation takes place. Patients who had been accustomed for years to morphia and who were in a relatively good state of nutrition, lost weight rapidly from the moment when they began to take larger quantities of cocaine—often from 20 to 30 per cent. in a few weeks. At the same time the assimilation of food is not diminished; there is no gastric catarrh. Such patients look pale, death-like; the

eyes are sunken, the flesh is flabby.* Sleep is very much disturbed by cocaine, and insomnia soon follows. As the most severe symptom of cocomania, we have to mention that form of insanity which occurs as acute mania, marked by delusions of persecution. It develops itself very quickly, and reaches rapidly its highest stage, in which dangerous impulsive actions are committed. In this state the patient is *dangerous to the community*, and *must* be brought into an asylum. It is not in all persons who suffer from cocaine-poisoning that this form of insanity develops to such a degree. In most patients occur hallucinations of vision and hearing, or temporary mental confusion is succeeded by general mental weakness and loss of memory.

The commencement of the mental derangement with visual hallucinations is characteristic. The hallucinations are mostly of men and of animals, but also of objects of any kind. Often, also, illusions occur. We have to direct the attention of the reader, particularly, to one kind of visual hallucination, because there appears to be an optical defect: the patient sees on a white plane a large quantity of dark points and spots. Our opinion is that we have to do here with the multiple disseminated scotoma. He thinks the spots to be animals or defects (*e.g.*, fleas on the sheets, small holes in white porcelain stoves, &c.). The auditory hallucinations are human voices, which utter scolding or offensive words, as well as noises of a general kind, to which the patient attributes a special meaning. One of our patients heard during the night thieves and burglars run into the house and prowl about; a female patient heard the alarms of trumpets and drums, and consequently she thought of fire and war. Abnormal sensations are very common. Patients believe themselves to be electrified, to have cold water poured over them, to feel little animals creeping on the skin, and it is characteristic, indeed, that they call it the "cocaine-bug," and try to catch it.

Another symptom of mental derangement to which we attribute a directly typical importance is a great prolixity in conversation and correspondence. Persons suffering from cocaine-poisoning, write and talk, so to say, with notes; they never finish, they always have one more sentence to insert; they use frequent repetitions; some have a real craving to write letters, many pages long,

* It has been ascertained by experiments on animals, that cocaine produces enlargement of the liver, and we ourselves have sometimes observed diabetes in cocomaniaes.

and they never finish their correspondence. If to these symptoms is added loss of memory, then conversation becomes an actual impossibility.

The symptoms of abstinence are not manifold and are not very severe. The most prominent of them are vaso-motor symptoms (palpitation and weakness of the heart, dyspnoea) and fainting fits, but half a gram or even a whole gram of cocaine can be taken away without any evil consequences. We have to mention as a mental symptom an extraordinary depression of mind and great weakness of will-power. We have never observed in patients who suffer from morphia-poisoning, crying and moaning, sighing and lamenting, loss of energy, and demoralisation, or craving for stimulants, as in persons suffering from cocaine-poisoning. These symptoms last a long time and distinguish a cocomanic from a morphino-maniac.

Hallucinations and illusions disappear soon after abstention from cocaine, often simultaneously. The same is the case with the mental confusion, but not with the insanity, which, on the contrary, is very constant and often concealed. The deprivation may be sudden, if the dose taken at a time was not more than one gram. If greater doses have been taken, the process has to be slower. To persons suffering from poisoning by cocaine alone, it is well to give large doses of alcohol or a little morphia internally. Patients who suffer from morphia- and cocaine-poisoning together, may take their usual dose of morphia during abstinence from cocaine.

Prognosis.—The prognosis for persons suffering from morphia- and cocaine-poisoning is much more unfavourable than for those suffering from morphia-poisoning only; the prognosis for those who suffer from cocaine-poisoning alone is very doubtful because of the many relapses. Severe cases are better sent at once into an asylum for several months. Whoever has seen the sudden and rapid destruction of a man who has taken to cocaine, in physical, mental and moral respects, will have to give up all optimism as regards cocaine. There is only one substance which equals cocaine in these respects—that is, brandy.

A. ERLNMEYER.

CODEINE. (*See* SEDATIVES.)

CÆLIACA (*cœliacus*, pertaining to the belly). In Good's "Nosology," applied to diseases which affect the digestive function. It has been proposed as a substitute for hysteria, on the supposition that its cause is functional disturbance of the coeliac centre.

CÆNÆSTHESIS (*κωός*, common; *αἰσθησις*, sensibility). Another and the better form of cænæsthesis (*q.v.*)

COFFEE.—Produces erethism of the nervous system; stimulates thought, and is hence called an intellectual drink. "There is," observes Fonssagrives, "excitement of the brain, but all the mental faculties are not stimulated to the same extent, and hence there is a certain amount of incoherence in the intellectual products. These are marked more by quickness than by solidity." Thought is controlled with difficulty. In short, the above author thus formulates the action of coffee: "*Intelligence rendered more active but somewhat choreic.*"

The habit of taking a daily dose of coffee becomes a pleasant habit. This habit often becomes an imperious demand; the brain requires its customary excitement, and becomes torpid and feeble without it. Taken in excess the mind becomes sluggish, the thoughts are with difficulty worked out, as indeed happens with all intellectual stimulants; there is also the supervening fatigue—a state truly of neurasthenia. There is a complete collapse of brain power. The patient suffers from a sort of diffused delirium, incoherence, with tremors (Max Kohn) and sensory disorders, obscure vision amounting to temporary blindness. This state has been termed the *delirium tremens of coffee*.

Coffee also stimulates cutaneous sensibility, and exalts the excito-motor functions. Lastly, in singular contrast to its action in some particulars, it is an aphrodisiac.

M. LEGRAIN.

COGNITION (*cognitio*, a becoming acquainted with). Herbert Spencer's term for those modes of mind in which we are occupied with the relations that subsist among our feelings.

COGNITION OF THE INSANE IN SCOTLAND (see articles on CURATORY and SCOTLAND, LUNACY LAW IN).—In its purpose and general character, the procedure known in Scotch law as the *cognition* of the insane corresponds to our own inquisition *de lunatico inquirendo*.

1. Prior to the Court of Session Act, 1868 (31 & 32 Vict. c. 100), the procedure was as follows:—A *brieve*,* either of *idiotry* † or of *furiosity*, ‡ was issued out of the Scotch Chancery Office, and addressed

* A short writ obtained from the Sheriff of Chancery, addressed to a judge, and ordering him to inquire into the points mentioned therein.

† The inquiry in the brieve of idiotry was "*Sit in compos mentis fatuus et naturaliter idiota.*"

‡ The inquiry in the brieve of furiosity was "*Sit in compos mentis prodigus et furiosus,*" &c.

to the Judge Ordinary of the district in which the alleged lunatic resided, directing him to hold an inquiry upon two points—viz., (1) the mental condition of the person whom it was desired to find insane; and (2) as to who was the nearest male agnate of twenty-five years of age.* The inquiry took place before a jury. The party alleged to be insane was, as in England, produced at the hearing in order that the jury might form their own opinion as to his mental state.† On the conclusion of the inquiry, the brieve with the verdict was *retoured* (*i.e.*, returned) to Chancery; and, if it established the unsoundness of mind of the party "cognosced," the nearest male agnate of the required age was appointed to be his *curator*.

2. By the Court of Session Act, 1868, the former practice as to the cognition of the insane was abolished, and the law was settled upon its present basis by that statute and an *Act of Sederunt* ‡ of December 3 in the same year.

The following are the chief provisions of these enactments:—

(1) A person is deemed to be insane "if he be furious or fatuous or labouring under such unsoundness of mind as to render him incapable of managing his affairs" (31 & 32 Vict. c. 100, s. 101).

(2) The person presenting the brieve must give notice of the fact by advertisement, once in the *Edinburgh Gazette* and twice in a newspaper published in the county where the person sought to be cognosced resides; or, if there be no such county, then in a newspaper published in the county adjoining.§ The brieve must be served on the alleged lunatic upon an *induciae* (*i.e.*, notice) of fourteen days. *Claims* (*i.e.*, by the person claiming the office of curator) and *answers* (on behalf of the person sought to be cognosced) are then ordered; the date of the inquiry is fixed; and provision is made for the attendance of the alleged lunatic, or for his being seen by the jury or some of them.||

(3) The trial takes place before the Lord President of the Court of Session (or any

* The agnate was entitled to custody of the estate merely. Custody of the person of the lunatic belonged to the nearest cognate, *Bryce v. Graham*, 1828, 6 S. 431. Any near relation of the alleged lunatic might apply for a brieve, *Larkin*, 1874, 2 R. 170.

† Such an examination is necessary, and in one case where it was not held, the verdict was subsequently reduced, *Dewar v. Dewar and Reid*, Feb. 25, 1809, F. C.

‡ An act of Sederunt is an act made by the Court of Session, under statutory authority, for the purpose of carrying out the provisions of an Act of Parliament.

§ Act of Sederunt, Dec. 3, 1868, s. 1.

|| Act of Sederunt, *ubi sup.*, s. 2.

judge of the Court of Session to whom the Lord President may remit it) and a special jury of twelve. The rules applicable to jury trials in civil causes apply, and the parties are entitled to the like remedies* for obtaining a new trial (31 & 32 Vict., c. 100, s. 101).

(4) When the jury, whose verdict may be unanimous or by a majority, affirm the whole heads of the brieve, the verdict is noted generally "cognosce." Where the jury do not affirm the whole heads of the brieve, the verdict is noted "not cognosce." In the former case, the formal record of the verdict (which is prepared by the clerk of court) is *retoured* (or returned) to Chancery; in the latter case, it is merely entered in the Books of Sederunt.†

(5) Expenses may be awarded to either party; but the party at whose instance the brieve was issued is not to be found liable in expenses, unless the Court is of opinion that he acted without reasonable or probable cause.

It is now more usual to proceed by application for the appointment of a *curator bonis*, than to sue a brieve of idiocy or furiosity out of Chancery.

A. WOOD RENTON.

[References.—Erskine, bk. i. tit. 7, s. 48; bk. iv. tit. 4, s. 7. Bell's Principles, s. 2103. Fraser on Parent and Child, 524. Mackay's Pract., ii. 300. Thoms on Judicial Factors (edition Fraser), 276. Bell's Dictionary, 535.]

COHERENCE (*cohaerere*, to stick together). Applied to a train of reasoning or a discourse. The suitable connection or dependence proceeding from the natural relation of parts or things to each other; consistency of diction.

COLIC, HYSTERIC (*colicus*, from *κωλικός*, suffering in the *κώλον*, or large intestine; *hysteria*.) Pain more or less intense, felt in the abdomen in hysterical patients during the intervals of attacks of hysteria. (Fr. *colique hysterique*.) (See HYSTERIA.)

COLIQUE DE ST. MATHURIN.—A popular French term for insanity.

COLONISATION (*colonia*, a colony). In the treatment of mental affections a term applied to the collecting together in a village of a number of insane persons under superintendence, but without restraint or precautions against escape, such as the colony of Gheel (*q.v.*)

COLOUR-HEARING. (See SUBJECTIVE SENSATIONS.)

COLOURED LIGHT, Effect of, on the Insane.—Some years ago Dr. Ponza, the superintendent of the Alessandria

asylum, Piedmont, prepared several rooms, the walls of which were painted of the same colour as the windows—namely, violet, blue, or red, it being held that violet rays are, of all others, those that possess the most intense electro-chemical power; the red light very rich in calorific rays; blue light, on the contrary, being quite devoid of them, as well as of chemical and electric ones. It should be stated that Father Secchi entered warmly into these experiments, and stated to Dr. Ponza that "violet has something melancholy and depressing about it, which physiologically causes low spirits; hence, no doubt, poets have draped melancholy in violet garments, perhaps violet light may calm the nervous excitement of unfortunate maniacs."

We are asked to believe that one of the patients morbidly taciturn, after being three hours in a red room, became cheerful and talkative; another, a maniac, who refused food asked for his breakfast after twenty-four hours' seclusion in the same room. In a blue room an excited maniac in a strait-waistcoat was secluded the whole of the day, with the result that an hour afterwards he appeared much more tranquil. Another patient, after passing the night in a violet chamber, desired to be sent home, as he felt quite well. We are assured that he has been well ever since. (The foregoing information is derived from the *Gazette des Hôpitaux*, 1876.)

Dr. Pritchard Davies was induced to make some experiments in what he terms photochromatic treatment of insanity. His conclusion is, that "The failures are very many and far outnumber the cures. The list of those upon whom it had no effect whatever is a very long one, and in many the improvement was but slight. Still, I am convinced it has very materially benefited some, and those not slight cases, but cases which had resisted other treatment and given great trouble." He believes it is most beneficial in hysteria, moral insanity, acute mania, and even in cases where, though the disease is of long standing, there are lucid intervals. The experiments were made in the "blue room." We have little doubt that he is right in regarding this treatment when successful as due to moral influence. (*Journ. of Ment. Sci.*, Oct. 1887, p. 348.) It may be added that M. Tagnet followed Dr. Ponza's treatment by coloured light, but failed to obtain any satisfactory results.

THE EDITOR.

COMA VIGIL (*κῶμα*, deep sleep; *vigil*, wakeful.) A condition of continued sleeplessness associated with partial un-

* *Viz.*, motions for new trials and bills of exceptions.

† Act of Sederunt, *ubi sup.*, ss. 5, 6.

consciousness. A symptom of unfavourable import, due apparently to a gradual suspension of the functions of the nervous centres, through exhaustion occurring towards the end of debilitating affections—*e.g.*, delirium tremens, typhus, &c.

COMATA (κῶμα, deep sleep). A generic name for soporose diseases—*e.g.*, trance, lethargy, &c. An order of the class neuroses of Cullen's "Nosology," the voluntary motions being impaired with sleep or a suspension of consciousness.

COMITIALIS MORBUS (*comitium*, a coming together; *morbus*, a disease). A synonym of Epilepsy, because on the occurrence of a case of this disorder during the sittings of the Roman comitia, or assemblies for electing magistrates, they were prorogued, the disease being regarded as a direct chastening of the gods.

COMMISSIONERS IN LUNACY.—The Act 14 Geo. III. c. 49 (1774), provided that five Commissioners, appointed by the Royal College of Physicians, should license private lunatic asylums and visit them once a year. If they found them in an unsatisfactory condition, they were bound to state to the College what they had observed. To their lasting disgrace they did nothing of the kind. Mr. Gordon's Act (9 Geo. IV. c. 40), passed July 15, 1828, took away from the College of Physicians the power which it had so shamefully neglected to exercise, and enacted that a similar authority should in future be invested in fifteen Metropolitan Commissioners appointed by the Home Secretary. Five were physicians, and ten were unpaid members. The appointment was an annual one. They met quarterly to grant licences, those in the provinces being granted by justices at quarter sessions. Three of the Commissioners were to visit private asylums in the metropolitan district four times a year. Two justices were to make similar visits in the provinces, accompanied by a medical visitor.

By the Act 2 & 3 Will. IV. c. 107, (1832), these Commissioners were to be appointed in future by the Lord Chancellor. Not less than four or more than five were to be physicians, and two barristers. A subsequent Act passed in 1842 (5 & 6 Vict. c. 87) conferred greater powers upon the Metropolitan Commissioners—namely, to inspect all the public and private asylums throughout England and Wales. It provided for two more physicians and two more barristers, making a total of seven of the former and four of the latter. In 1844 a valuable Report was made to Parliament as the result of

their inspection of the condition of asylums in England and Wales.

A permanent Board of Commissioners in Lunacy was established by Parliament under Lord Ashley's Act of 1845 (8 & 9 Vict. c. 100 and c. 126.). This committee met for the first time August 14, 1845, and, after electing Lord Ashley permanent chairman, proceeded to divide the whole of England and Wales into certain districts and to apportion the visitation to be made therein as equally as appeared practicable among the Commissioners (Report of Commissioners, 1847). Six paid Commissioners were appointed, three of these belonging to the medical and three to the legal profession. In addition to these, there were five unpaid commissioners. The Act allows the Commissioners to make rules for their own duties and obliges them to make an annual Report to the Lord Chancellor, which is laid before Parliament. (*See* also 16 & 17 Vict. c. 96, s. 32.) (For the limits of the immediate jurisdiction of the Commissioners in Lunacy *see* 8 & 9 Vict. c. 100 s. 14.)

When under the Lunacy Act of 1845 the Commissioners in Lunacy were appointed, it was enacted that the officers previously called by that name under the 5 & 6 Vict. c. 84 should henceforward be denominated "The Masters in Lunacy" (*see* CHANCERY LUNATICS).

The recent Lunacy Act (1890) confers certain powers upon the Lunacy Board, for which the reader is referred to the clauses of the Act and to the article thereon in this Dictionary. THE EDITOR.

COMMUNICATED INSANITY.—This, on the whole, is the best equivalent for the French term *folie à deux*, although there are cases comprised under this term which are not, strictly speaking, the result of psychical contagion.

Synonyms.—The writer has employed the phrase "double insanity" as a synonym,* but it is inconvenient when, as not unfrequently occurs, more than two persons are affected.

M. Régis was, we believe, the first to employ the term *folie simultanée*. Lasègue and Falret suggested *folie imposée*, and Lehmann, *folie induite*. M. Legrain adopts Régis' term (*Archives de Neurologie*, No. 48), but he discriminates between different varieties.

Classification.—(1) Cases in which an insane patient distinctly infects another person with the same mental disorder. (2) Cases in which a person becomes insane from companionship, not in conse-

* *Brain*, vol. x., 1888, p. 408.

quence of the direct transference of morbid ideas, but in consequence of the shock arising out of the painful impressions caused by witnessing the attack, or by the strain of nursing a patient. (3) Cases in which two or more persons become insane simultaneously from the same cause. (4) Cases in which one lunatic infects another lunatic with its special delusion. It will be observed that if we restrict ourselves to the idea of contagion or communication of mental disease to another, we must dismiss from the above divisions the second and third categories. Possibly it would be better to pursue this course and to limit ourselves rigidly to the morbid influence of one mind upon another. It is, however, practically convenient to use the term *folie à deux* in a wider sense, and to include under it such cases as fall under the second and third divisions.

The writer has recorded a typical illustration of double insanity, a gentleman and his wife who presented the same character of mental disorder—delusions and hallucinations. An instance of *folie à quatre* is also given in the same article (*Brain*, January 1888). With regard to cases under the third division, those, namely, in which two or more persons become insane from the same cause, it must be remembered that although they are not up to this point examples of communicated insanity, they may almost immediately exert a contagious influence. Thus, in the excitement of a religious revival, although A. and B. become mentally affected from a common cause, their condition is aggravated by sympathy and imitation. Hence the hysterical convulsions or acute mental excitement resulting from movements, whether religious or political, which affect large numbers of people, may very properly be included under communicated insanity. The following **practical points** should be borne in mind by the medical psychologist.

(1) Are the patients members of the same family? (2) Is there any insane inheritance, or if not, is the patient, who appears to be the passive subject or parasite, distinctly neurotic? The question of predisposition is, for obvious reasons, highly important. (3) How soon after A. and B. met, did B. manifest mental disorder? (4) How long did they continue to associate? (5) To what extent did the passive subject develop symptoms identical with those of the active agent? (6) Were they separated, and if so, what was the after-history of the patient, more especially that of the passive subject?

Conclusions.—On the whole we may

present those which follow as the results of experience:

(a) The influence of the insane upon the sane is very rare, except under certain conditions, which can be laid down with tolerable accuracy.

(b) As an almost universal rule, those who become insane in consequence of association with the insane, are neurotic or somewhat feeble-minded.

(c) More women become affected than men.

(d) It is more likely that an insane person able to pass muster, as being in the possession of his intellect, should influence another in the direction of his delusion, than if he is outrageously insane. There must be some method in his madness.

(e) The most common form which cases of communicated mental disorder assume is that of delusion, and especially delusion of persecution, or of being entitled to property of which they are defrauded by their enemies. Acute mania, profound melancholia, and dementia, are not likely to communicate themselves. If they exert a prejudicial effect, it is by the distress these conditions cause in the minds of near relatives.

(f) A young person is more likely to adopt the delusions of an old person than *vice versa*, especially if the latter be a relative with whom he or she has grown up from infancy.

(g) It simplifies the comprehension of this affection, to start from the acknowledged influence which a sane person may exert upon another sane person. It is not a long road from this to the acceptance of a plausible delusion, impressed upon the hearer with all the force of connection and the vividness of a vital truth.

(h) It is not easy to determine to what extent the person who is the second to become insane, affects in his turn the mental condition of the primary agent. Our own cases do not clearly point to this action, but there have been instances in which this has occurred, the result being that the first lunatic has modified his delusions in some measure, and the co-partnership, so to speak, in mental disorder, presents a more plausible aspect of the original delusion.

Prophylaxis.—It is obvious, in view of the evidence which we have given, that it is highly undesirable to risk an actual attack of insanity in a neurotic person by subjecting him or her to the influence of an insane individual, more especially if the character of mental disorder is one likely to impose itself in consequence of

its intense, or, so to speak, propagandist nature. The danger is greater if they are members of the same family.

When communicated insanity already exists, there can, of course, be no question in regard to the absolute necessity of separating the affected individuals. One of the two is to be regarded as the passive, the other as the active agent. Probably the former, when removed from an injurious personality, and placed amidst healthy surroundings, will regain the lost equilibrium.

THE EDITOR.

[References.— De La Contagion Morale, par Prosper Despine, docteur en médecine, 1870. De la folie communiquée ou du délire à deux ou plusieurs personnes, par de Dr. Macey (Thèse de Paris, 1874). La folie à deux ou folie communiquée, par MM. Lasègue et Falret (Annales méd. psych., Novembre 1877). La folie à deux ou folie simultanée, par Dr. Emmanuel Régis, 1880. Folie à deux, by Dr. Hack Tuke, Brain, vol. x.]

COMPANIES (Law of) in Relation to Lunacy.—As to the general right of a lunatic to become a shareholder, see **CONTRACTS OF LUNATICS**, and *Molton v. Camroux* (2 Ex. 487 and 4 Ex. 17), and *Beavan v. McDonnell* (9 Ex. 309, 10 Ex. 184). A lunatic so found is not in a position to bind himself by contracts or to deal with his own property. Shares belonging to him remain his, and he is liable to calls and to be a contributory in respect of them; but his rights can only be exercised by his committee. The committee can sell and transfer such shares without himself becoming a shareholder in respect of them (16 & 17 Vict. c. 70, ss. 2, 116, 120, 123, 140-144).

Shares standing in the name of a lunatic trustee may be transferred by a person appointed by the Lord Chancellor for the purpose. (13 & 14 Vict. c. 60, s. 5.) (See Lindley "On Company Law," p. 40.)

A. WOOD RENTON.

COMPOS MENTIS (L.) The legal term expressive of soundness of mind, memory, and understanding. (See **NON COMPOS MENTIS**.)

COMPREHENSIO or **COMPRESIO** (*comprehensio*, from *comprehendo*, I lay hold of). Synonyms of Catalepsy.

CONÆSTHESIS.—Another form of *Conæsthesia* (*q.v.*).

CONATION (*conor*, I try). A term used by Sir W. Hamilton for the faculty exhibited in the exertive powers of the mind, that of voluntary agency embracing desire and volition, as distinct from the cognitive faculties and the feelings.

CONCEALED INSANITY. (See **INSANITY, CONCEALMENT OF**.)

CONCEPT (*conceptus*, a receiving). The subject of a mental conception; the object conceived by the mind; a notion.

CONCEPTION (*conceptio*, from *concipio*, I comprehend intellectually). The abstract idea of a thing in the mind; also the power of conceiving in the mind. (Fr. *conception*; Ger. *Begriff*.)

CONCEPTION, FALSE (*concipio*). A term applied to a false idea which cannot be expelled either voluntarily or by reasoning; such are found in Hypochondriacal insanity (*q.v.*). (Fr. *conception, fausse*; *conception délirante*.)

CONDUCT.—Conduct is the most important of all the factors that the alienist has to consider, for by conduct, and by conduct alone, can we judge of sanity or insanity. To those who are accustomed to regard insanity as essentially a disorder of mind, this assertion will appear strange, but a very little consideration will show its correctness. In the first place, however disordered a person's mind may be, he is not regarded as insane unless and until he gives evidence of his insanity by some overt act. Allow that a man's mind is subject to hallucination; that, for instance, he sees a spectral cat where no cat is; yet if the appearance of the cat do not evoke from him any corresponding phase of conduct, then although we admit that his mind is disordered, we do not regard him as insane. But if he strikes at the imaginary cat, if he pursues it round the room, and with noises and gestures endeavours to frighten it away, then arises the question of his sanity, because then to disorder of mind is added disorder of conduct. Or if his mind be subject to delusion, so that he fancies, for instance, that he is a man of unlimited wealth, or that he is in dire poverty, yet if, in spite of this delusion, he manages his financial and other affairs with prudence and success, it would be impossible to regard him as insane. But the moment that he begins, in consonance with his delusion, either to draw cheques for impossible amounts, or to refuse himself and his family the necessary means of subsistence, from that moment he is regarded as insane; and is so regarded because of the disorder, not of his mind, but of his conduct. Even granting that the delusion is the central fact, of which the disorder of conduct is but the outcome, yet the consideration remains that mind can be known only by its external expression—*i.e.*, by conduct, oral or other, and that not until it has been expressed in conduct can we judge of the character, or even of the existence, of mind. Not only do we refuse to regard disorder of mind, when unaccompanied by disorder of conduct, as evidence of insanity, but on the other hand, when conduct is disordered,

we do not wait to investigate the condition of mind, but infer at once, from the disorder of conduct, that insanity is present. Suppose that we see a man strip himself stark naked and stand on his head in a crowded room. Or suppose that a stranger greets us with effusive affection and offers us a gift or cheque for £10,000. Or suppose a man rushes out into the street with a shotgun and fires right and left at inoffensive passers-by who are strangers to him. We do not want to investigate the condition of that man's mind before pronouncing him insane. We infer his insanity directly from his conduct; and so, in every case, conduct is the prime, the essential, factor in determining the question of sanity or insanity.

Scientifically considered, conduct is the active or dynamic adjustment of self to circumstances. Every organism is environed by circumstances, to which it is more or less thoroughly and perfectly adapted. As the circumstances alter, the adaptation of course fails, and a re-adjustment must take place, by which the organism is again brought into adaptation with them; or, in the alternative, the organism suffers and eventually perishes. Such readjustments are of two orders. First, those which are passive, static, or structural, as, for instance, when the fur of a hare becomes white in adaptation to the deposit of snow on the ground on which it has to move; as in the withering of branchiæ and evolution of lungs which occur when the axolotl is forced to leave its aquatic habitat. The second order of re-adjustments of self to surroundings is the active or dynamic, and comprises the phenomena of conduct.

In investigating conduct, therefore, the subject of our investigation is the adjustment of self to circumstances by means of acts, and the subject may be divided according to the classes of circumstances to which the adjustment is made.*

The **first**, most primitive, most immediate, and most fundamentally important class of circumstances to which readjustment has to be made, is that which includes the *physical features of his environment*. Obviously, the first necessity of man's continuance is his avoidance of physical dangers. He must be able so to adapt himself to the physical circumstances which surround him as to avoid falling into holes, walking against obstacles, and, generally, placing himself in positions of peril. He must be capable of escaping from positions of danger when he finds himself in them. In other words,

the first division of conduct comprises those acts which "minister directly to self-preservation." "Could there be a man," says Spencer, "ignorant as an infant of surrounding objects and movements, or how to guide himself among them, he would be pretty sure to lose his life the first time he went into the street." Mr. Spencer seems to doubt whether such a degree of inability could exist in the adult, but an approximate condition is very frequently exhibited, on the one hand by idiots, and on the other in extreme degrees of dementia.

The directly preservative division of conduct admits of subdivision into three parts. The *first* is that portion comprising *the prehension of food*. Of all the phases of conduct this is the simplest, the most important, the most fundamentally necessary, the first to appear in the race, and in the individual, and the last to disappear with the failure of life or of sanity. The more elaborate methods of prehending food, the use of the knife and fork, of the wineglass and serviette, are of course of much later origin, are much earlier affected, and belong rather to the social than the self-preservative activities. So, too, not only the earning, but the cooking and preparation of food are activities of a more elaborate character, are of later acquirement, and do not come under the present heading. But the actual prehension, the administration to oneself of food of proper material, and in sufficient quantity, is the earliest and most essential of the activities of which conduct is composed, and is the last to be lost when conduct is decaying.

The *second* part of directly self-preservative conduct is that by which *the individual preserves himself from immediate danger of mechanical injury*. Acts which subserve this end are only one degree less essential than those of the last division. After the acts necessary for the prehension of food have been acquired, the acquirement of next highest importance is that of the activities necessary for equilibration, for avoidance of collision with bodies at rest, for the avoidance of falling or otherwise moving bodies, for escapes from enemies, and of dangers by water, by fire, and of other obvious kinds. All these activities are of simple kind, of early acquirement, and are long retained.

The *third* division of directly self-preservative activities consists of those which serve to *guard against dangers from forces that may be described as molecular rather than molar*—e.g., from cold, from heat, from poisonous foods and stenches, rebreathed air, &c. It is manifest that the activities of this third division are of much later

* The divisions of conduct here given are those laid down by Herbert Spencer.

acquirement than those of the other two, but that for the most part they are still activities of fundamental nature. The majority of animals take little or no precautions against extremes of heat and cold. Man does not take precautions until he has long reached a stage of development which entitles him to be considered of human status. Therejection of poisonous foods is an affair of education, and the activities for the avoidance of poisonous vapours and of rebreathed air are even now in course of development.

The **second** great class of activities composing conduct are those "which minister indirectly to self-preservation," that is to say, those by which the livelihood is earned. These activities vary very widely in different individuals, both in amount and in nature, the variation depending in part on the nature of the individual, and in part on the circumstances in which he is placed. There is a considerable number of people who appear to be innately incapable of earning a livelihood. Clever they may be in various ways, and capable of brilliant display of useless accomplishments; but in all that savours of remunerative work they are as helpless and incompetent as infants. The character of Bertie Stanhope in "Barchester Towers" is an example of what is meant. On the other hand, there are men who are born men of business, whose lives are consumed by the passion of bargaining, of scheming to add pound to pound and acre to acre, and whose skill in extracting benefit from their circumstances is in proportion to the assiduity and intensity of their application to business. Again, some men are compelled, by the circumstances of their lives, to spend virtually the whole of the time that is not demanded by the imperative needs of food and sleep, in the acquisition of sufficient means to afford them the bare necessities of life; while others are from their birth relieved from any necessity of working at all for their livelihood. Between these two extremes of nature and of circumstance there is every shade of intermediate degree, and the proportion of the total available activity of the individual that is absorbed by these activities of the second class varies accordingly.

Apart from the quantity of activity that is thus expended, the quality varies very greatly, and from the point of view of the alienist, the latter is at least as important as the former. The livelihood may be earned by the grossest mechanical labour, by digging, by turning a windlass, or pulling an oar, or it may be earned by

the most refined and elevated abstract reasoning, by the discovery of new truths in mathematic or mental science. Or it may be, and commonly is, earned by some combination of bodily and mental exertion.

Whatever the amount, and whatever the nature of the activities of this class that are demanded and displayed by an individual, the important factor with reference to his sanity is the proportion of his total activity that is absorbed in earning his livelihood. For normal life it is necessary that this proportion should be such that, while much energy is absorbed in this way, a considerable residue of activity is left to be expended in the ways that will presently be considered.

Many individuals are so circumstanced that there is no need for them to work for a livelihood. For them means are already provided which relieve them of the necessity of working for remuneration. Men so situated are common objects of envy to their fellows, but it must not be supposed that they are exempt from the law that health of body and of mind must be obtained by toil. If they are under no external pressure to undertake remunerative toil, they are urged by impulse from within to employ in some way the energies that accumulate within them, and, unless these energies find free and suitable outlet, health will suffer.

The outlet for energy must be *free*. Unless the occupation that is found is sufficient, the evil of idleness will be experienced in some degree. Energies that find insufficient outlet will accumulate, more slowly it is true, but not less surely than energies that are denied all outlet; and the vapid existence of the man about town will result, more tardily, but not less surely, than that of the prisoner condemned to solitary idleness, in bodily and mental wreck, unless some substitute be found for the work of earning a livelihood. No suffering is more terrible than that of an energetic nature under enforced idleness; no pains more severe than those of *ennui*; and pain is, *cæteris paribus*, a measure of the injury that the organism is suffering.

The outlet for energy must be *suitable*. The man of keen and active intellect will not find sufficient outlet for his energies in purely mechanical occupation, even if this be pursued to the point of exhaustion, nor will the man of elevated emotional nature and æsthetic tastes find sufficient outlet in some grimy manufacturing handicraft. In each case, the occupation must be of such a character as to give opportunity for the expenditure of the predominant activities of the man's nature,

and unless these opportunities are given, the activities will be unexpended, will accumulate, and will originate the disorders that arise from pent-up energy.

The commoner case is not that in which the outlet for energy is insufficient, but that in which the demand made upon the energies by the necessity of earning a livelihood is excessive: that in which the amount of energy thus absorbed is a disproportionately large share of the total available energy, and in which consequently the amount that remains available for expenditure in other ways is reduced below the normal. In such cases the man's life is one-sided. A large proportion of his activities are unable to find outlet, his nature becomes imperfectly developed. He suffers on the one hand from satiety owing to the excess of activity that is expended in one way, and, on the other hand, from desire, owing to the inability of other activities to find outlet.

The amount of energy that is demanded of the organism by the exigencies of the livelihood may be, not merely relatively, but absolutely excessive. That is to say, the amount thus expended may be so great as not merely to leave none available for expenditure in other ways, but it may be so great as to be in excess of the powers of the organism to restore. The man is then not merely in the position of spending a disproportionate amount of his income upon one pursuit to the starving of others, but in that of allowing his expenditure of energy to exceed his income. Physically, as financially, such a course can end only in disaster. Such a course of life must result, sooner or later, in breakdown of bodily health or in insanity.

Which of these results shall ensue depends on several conditions. It depends on the heredity of the individual, on various concomitant circumstances, and, which is all that concerns us now, it depends on the character of the work to which the excessive energy is devoted. Speaking generally, the more mechanical and the more purely a matter of routine the character of the work, the more likely is the stress to fall on and damage the bodily health. Commonly, the more close, continuous and vigilant the application of attention to the work, the more liable is the stress to produce insanity. Insanity is not found to be prevalent among the victims of the sweating system, long as are their hours of work, and excessive as is the demand made upon their energies by the exigencies of their means of livelihood. They are greatly obnoxious to phthisis and to other forms of breakdown of bodily health, but they are not specially

subject to insanity, and the reason for this exemption is to be found in the character of their work, which is of purely routine and mechanical character. Their handicraft, when once required, needs no close attitude of attention for its performance. The movements by which it is operated have become to a very large extent automatic, and involve no exercise of thought, of ingenuity, or of attention. Hence the strain that is produced bears with no special stress upon the highest nerve regions. There is a general exhaustion of the bodily powers, which leaves the organism greatly at the mercy of any noxious influence to which it may be subjected; but as this exhaustion is not confined to the higher nerve regions, nor does it affect them in any special degree, but rather allows them to escape its direct incidence, the breakdown that results does not often take the form of insanity.

On the other hand, when occupations in which the attention is closely engaged are pursued to an excessive degree of absorption of time and energy, the breakdown that ultimately results is very apt to be the breakdown of insanity. Hence we find that in those cases of insanity which are attributable to overwork, the work needs close attention. It is the work of preparing for examination, or it is work attended by great anxiety, anxiety being constant attention *plus* apprehension. For this reason it is that precarious occupations are more detrimental to sanity than those in which the livelihood is secure. Men who are in no danger of losing their means of livelihood are free from one of the severest forms of anxiety, and when so circumstanced can endure a very great absorption of time and energy in the earning of the livelihood without much danger to their sanity. It is when, to a high degree of precariousness of the means of livelihood, is added a great demand for close and vigilant attention in the daily work, that the greatest danger to sanity arises, and consequently it is the daring speculator, the man who is daily hazarding his fortune and position in some project which requires a great absorption of attention and exertion, whose work exposes his mental health to the severest stress.

The **third** division of conduct comprises those activities which subserve the production, maintenance, and rearing of offspring. To some extent these activities are included in the last, since it is impossible to divide accurately the amount of energy expended in earning one's own living from that expended in earning a

livelihood for one's children. There is, however, a large field of activity which is special and peculiar to this third division of conduct.

The first step towards the production of children is the sexual act, and this act is itself a drain upon the energies of the organism. In both sexes the sexual act expends a copious draught of energy, but the expenditure is much greater in the male than in the female. If the theory advanced in the article on HEREDITY is true, that the contribution of the female parent to the formation of the offspring is mainly matter, while the contribution of the father is mainly the energy which animates the matter, the fact becomes to some extent explicable; but whether this supposition be true or no, the fact remains that the sexual act requires a greater expenditure of energy on the part of the male than on that of the female, and that the consequent exhaustion is in the male more rapid and more complete.

The proportion of the total energy of the individual that is expended in the sexual act varies not only with the sex, but with the innate character of the individual, and with the circumstances in which the individual is placed.

The tendency to indulgence in the sexual act varies greatly in different individuals. There are some in whom this tendency is the dominant passion, in whom it is observable even before the advent of puberty, and after puberty is indulged to great and constant excess. In others the internal impulsion to the sexual act is infrequent and faint. Stronger as a rule in men than in women, there are yet some women in whom the impulse is stronger than in some men, but probably no men in whom it is so evanescent as it is in some women.

Circumstance also influences largely the proportion of the energies that is expended in the sexual act. Those who have abundant leisure, and who have little outlet in other ways for the expenditure of energy, are especially prone to find outlet for their activities in this way, and hence we find that profligacy is common among youths who are under no obligation to earn their livelihood, and that masturbation is the rule among the idle inmates of lunatic asylums. On the other hand, those who are obliged to spend a disproportionate amount of time and energy in the earning of their livelihood have the less to expend in other ways, and are sexually temperate perforce.

As with the practice, so with the result; there is much variety in the amount as well as in the nature, of the consequences

that result from undue indulgence in the sexual act. Only one thing can be stated with certainty as to these results, and that is, that since sexual excess is an excessive expenditure of energy, its consequences will fall upon the tissue whose function it is to store and expend energy, upon the nervous system. Upon what portion of the nervous system these consequences will fall with special stress, whether on cord or brain, whether upon higher or lower nerve regions, depends on considerations that cannot here be entered on; but wherever the special and pronounced defect may be, one general defect is common to all cases in which the sexual act has been indulged in to excess, and that is a general diminution of the energies of the body. The individual becomes less active, less energetic, less prone to exertion, both bodily and mental; sooner fatigued, less enduring, more lethargic. When the excess has been but moderate, this loss of energy shows itself merely as a premature dementia, which is more or less complete as the excess has been greater or less.

As to the amount of sexual indulgence which is to be regarded as excessive, and which is attended by deleterious consequences, nothing definite can be said. Undoubtedly the power as well as the inclination varies materially in different individuals, and that which would be excessive for one would not be so for another. Generally, however, it may be stated with confidence that the less the energy thus expended, the more remains to be expended in other ways.

Next in order of time to this act, the stress of which falls chiefly, perhaps, in its pathological consequences, entirely on the male, comes the act of reproduction, the stress of which falls of course entirely on the female. How far the reproductive act can be regarded as directly belonging to conduct is perhaps a matter of doubt, but this is an appropriate place for considering its influence upon the sanity of the mother.

Reproduction and life are fundamentally antagonistic. In the lowest organisms, in which we trace the beginnings of both processes, we find that reproduction does not occur until life begins to fail, and that the effort of reproduction is fatal to life. As we raise our regard to animals higher and higher in the scale of life we find that the same antagonism prevails throughout, but that it becomes modified in degree. We find throughout not only that the welfare of the individual is subordinated to the continuation of the race, but that only by injury to the individual can the

race be continued. Here it is a simple organism which yields up its whole substance to be parcelled out among its progeny, whose escape leaves their parent an empty lifeless sac. Here it is an insect, whose toilsome life and many metamorphoses end in an imaginal state which endures only till the eggs are deposited, and then terminates instantly in death. Higher in the scale of life we find that when offspring are from time to time brought forth, each occasion of parturition brings the life of the mother within measurable distance of its end. It needs not the frequency of deaths in childbirth nor the special obnoxiousness of the parturient woman to unsanitary influences to impress this truth upon us. The temporary mania which occurs at the moment of parturition, the condition of prostration which follows, show us the intensity of the stress which women suffer in childbirth; indicate the impairment of the power of living with which the act is necessarily attended.

The **fourth** group of activities are those "which are involved in the maintenance of proper social and political relations." Long before the ancestors of man had assumed the character of humanity, they were gregarious in habits, and the gregarious instincts have become so deeply engrained in human nature that the need for satisfying them has become imperative, and cannot be thwarted with out disastrous results.

Activities of this class fall naturally into two groups; first, those by which the individual maintains appropriate relations with the society in which he lives, or, in other words, those by which he adjusts himself to his social environment; and second, those by which the individual, as a unit of this society, helps in maintaining the relations of the society as a whole to its environing circumstances. The first group may be termed social, the second patriotic activities.

The social activities form a very important section of the total activities of man's nature, and the need for satisfying them is one of his most urgent needs. Total isolation from human companionship cannot be endured for long without damage to mental health, and partial isolation, such as is suffered by those whose companions are seldom available, or imperfectly congenial, is, after a long interval, also detrimental. Man's primary social need is for mere contact with his fellows. It is necessary for him to be surrounded by others of his race, to see and hear their proceedings, to be aware of their proximity. We see in all social

animals an uneasiness and restlessness when they are placed out of sight and hearing of their fellows. But beyond this general and vague desire for gregariousness, there is a definite need of standing well with the particular *grew* to which he belongs. A man must so order his conduct as to gain the approval and good opinion of those with whom he consorts, and the desire of gaining and retaining this good opinion is one of the strongest of the motives by which his conduct is prompted and regulated. Even in those cases in which the conduct is known to be such as would incur the reprobation of the main social body, yet it is ordered so as to gain the approval of some small inner circle, or is concealed altogether, so as to avoid the expression of reprobation. Thus, apart from the physical enforcements of the law, there is always a powerful motive prompting each individual to conformity with the customs and usages of the society to which he belongs. He is thus compelled so to order his conduct as to respect, not only the persons and property, the rights and liberties of his associates, but to consider their feelings also.

Distinct from the social activities, by which each individual adapts himself to the society in which he lives, are the patriotic activities, by which he, in common with the other members of his society, adapts that society to the general environment in which it exists. Such activities do not demand extended consideration in connection with insanity. They include the means whereby nation protects itself against nation, and whereby each social group defends itself against destructive and disintegrative factors, external and internal, physical, social, and moral.

The **fifth** class of activities that go to the composition of conduct are those of religious observance, with regard to which not much need be said. Intermediate in position between the last class and the next, they partake to some extent of the nature of both. History shows that religious motives have played a conspicuous and important part in both the integration and the disintegration of societies; and on the other hand religious observances afford much outlet for æsthetic and even recreative activities. While in practice the proportion of the total activity that is absorbed by religious observance varies much in different people, and within what appear to be normal limits, it may be stated with confidence that conduct as a whole is incomplete unless some portion of activity is thus

employed, and is erroneous if the amount of activity absorbed by religious observance is unduly large. The matter does not admit of regulation by precise rules, but as conduct without religious activity of some kind is undoubtedly imperfect, so conduct of which religious activity is too absorbing an element is undoubtedly disordered.

The **sixth** and last class of activities into which conduct is divided is that which includes the recreative and æsthetic activities. Activities of this class vary again very widely as to the share of conduct that they compose. In no case can they be more than the surplus left over after the livelihood is earned, the sexual activities gratified, and the social and patriotic duties provided for, but the amount of this surplus may, it is evident, vary within extremely wide limits, according to the need for absorption of activities in the other classes, and according to the bent of the individual towards employing his surplus in this way or in that.

C. MERCIER.

CONGENITAL SYPHILITIC DISEASE OF THE BRAIN. (See HEREDITARY SYPHILITIC DISEASE OF THE BRAIN.)

CONIUM. (See SEDATIVES.)

CONQUASSATIONES ANIMI (*conquassatio*, a severe shaking; *animus*, the mind). An old term for mental disturbances or affections of the mind.

CONSANGUINITY.—The danger arising from marriages of consanguinity has been insisted upon from time to time by medical writers, and has been recognised by ecclesiastical authority, civil law, and by popular feeling. As regards ecclesiastical and civil law, it would be more correct to say that the marriage of those very nearly related has been forbidden on other grounds than that of the alleged danger to mental health. At the same time the justice of such laws receives support, if medical observation leads to the conclusion that consanguineous marriages tend to generate idiocy and insanity.

It must be admitted that the way in which the subject has been too frequently discussed, and the danger enforced, has been too indiscriminate and illogical. No one has done more to discriminate between the conditions under which marriages are, or are not, injurious than Mr. Alfred Henry Huth, who in 1875 published a work entitled "The Marriage of Near Kin." On the one hand there is certainly only too conclusive evidence that disastrous effects result from the unions in question when there is already idiocy or insanity in the family; such morbid condition is intensified in the offspring. On the other

hand, it is by no means clear that consanguinity *per se* causes insanity in the offspring.

Sir Arthur Mitchell, in papers of much value, contributed to the *Edinburgh Medical Journal*, 1865, stated the results of his observations to be that "under favourable conditions of life, the apparent ill effects of consanguineous marriages are frequently almost *nil*, whilst if the children are ill-fed, badly housed and clothed, the evil may become very marked. He calculates that the percentage of consanguineous marriages in Scotland is 1.3, or ten times less than with the parents of idiots. Certainly, taking his figures, a strong case seems to be made out in support of the opinion that idiocy, among other evils, results from the marriage of cousins. Dr. Langdon Down, although his figures are not of so unfavourable a character, admits consanguinity as one of the causes of deterioration. Mr. George H. Darwin concluded, from a careful investigation, that about 4 per cent. of all marriages in England are between first cousins, and between 2 and 3 per cent. in the smaller towns and in the country. With these he compared the rate of similar marriages among the parents of lunatics and idiots in asylums, and found it to be about 3 or 4 per cent., not higher therefore than in the general population. We cannot, however, attach much importance to the statistics based on returns from asylums, for the information obtained from this source must be exceedingly defective. (See *Statistical Society's Journal*, June 1875).

On the whole, as the writer has already stated in the "Manual of Psychological Medicine": "This practical inference is, that first cousins should not marry unless both they and their ancestors have been free from insanity. However healthy themselves, if a near ancestor has been insane, the physician when consulted must say, 'I forbid the banns.' Although, therefore, it may be quite true that consanguinity in itself does not create mental disease, it is so difficult to ensure the sound constitutions of the parties marrying and of their ancestors, that the marriage of those near of kin is very often undesirable." (4th ed. p. 68-71.) THE EDITOR.

[References.—Marriages of Consanguinity in Relation to Degeneration of Race, London Hospital Clinical Lectures and Reports, 1866. On the Influence of Sex in Hereditary Disease, Medico-Chirurgical Review, 1863, by Dr. Sedgwick. On Hereditary Tendency, by Dr. Maudsley, *Journal of Mental Science*, Jan. 1863 and Jan. 1864. Marriage of Near Kin, by Alfred Henry Huth, 1875. The Relationship of Marriages of Consanguinity to Mental Unsoundness, by G. E. Shuttleworth, M.D., *Journal of Mental Science*, Oct. 1886.]

CONSCIENCE (*conscientia*, from *con*, or *cum*, with, *scio*, I know). The knowledge of one's own actions or thoughts; the inner faculty which judges of the right or wrong of an action.

CONSCIOUSNESS (*consciens*, aware of; from *con* or *cum*, and *scio*).—To the question, What is meant by consciousness? no answer can be given. Consciousness is not susceptible of definition. It is an ultimate fact, it is *the* ultimate fact, of our existence. We cannot go behind it. All other things are definable in terms of consciousness, but consciousness itself is not definable nor describable. We know it, so far indeed as we can properly speak of knowing that in us which knows, only by the contrast of its parts. We are conscious that there is a world of objects outside of us, in which we are and in which we move, and we are conscious that the centre of this world is a self which knows and feels. Upon reflection we find that of the world around us we know nothing directly except by the different conscious states that occur in us, which we attribute to its action, and of ourselves we know nothing directly save that we are a continuum of conscious states. Each object that we see and recognise we know only as a bundle of feelings. We know it by its colour, which is a feeling, by its shape, which is an inference—*i.e.*, a process of consciousness founded on the basis of feelings of movement, by its distance, which is again an inference founded upon memories of movement; by its position, which is similarly known. Of ourselves we have gained a knowledge of our bodies in the same way as we have gained the knowledge of other objects. The body that is thus known, and that moves freely among other objects, is associated with the consciousness of which all these feelings form part, and which we refer to when we speak of our "self."

We have arrived at the conclusion, how, it is not necessary here to explain, that there exists around us a world of objects which possess the property of so acting upon us as to arouse in us thoughts and feelings, and we distinguish, as separate from this external world, an inner world of thoughts and feelings which compose our consciousness. The two sets of things we regard as totally and absolutely distinct. Each is a separate world—a universe by itself. There is a universe of matter around us and a universe of mind within. The events of the one are to some extent mirrored in the other, but their nature and composition are totally different and cannot be reduced to common terms. The one consists of particles and

movements, the other of feelings and thoughts, and we can no more think of mind and matter in convertible terms than we can imagine a particle of iron to become transformed into a feeling of anger, or the revolution of a wheel to become the remembrance of the date of a battle.

There are three aspects from which consciousness may be regarded.

(1) Consciousness may be regarded by itself, apart from material phenomena, with reference to its variations and its components, and without having regard to anything outside itself.

(2) Although the world of consciousness is entirely separate and distinct from the world of matter and force, so that no action is possible either of mind on matter or of matter on mind, yet it is found that the states and processes of consciousness invariably accompany states and processes of the matter which composes the superior portions of the nervous system. No condition of consciousness can occur without the occurrence of some corresponding condition in the higher nerve regions; nor can any change take place in these higher nerve regions without the accompaniment of a mental state or process. The two occurrences are, however, entirely distinct, are carried on in different worlds, and can best be understood by regarding the mental condition as a shadow of the nervous action. When certain events take place in the higher nerve regions, then certain thoughts, feelings, volitions arise in consciousness. The one change cannot be called the cause, nor even the antecedent, of the other, since they are, as far as we know, simultaneous, but the two changes, separated as they are by a hiatus more absolute than that which divides any one material phenomenon from any other, are yet connected so closely by bonds of time, of degree, and of quality, that they have been considered, and possibly may be, obverse and reverse aspects of the same occurrence. The second point of view from which consciousness has to be examined is, therefore, with reference to the conditions of the nervous action with which it is necessarily associated.

(3) Not only is every phase of consciousness the shadow of some condition of the superior nerve regions, but it is at the same time the mirrored representation of some condition in the world outside of us. A feeling of heat may be regarded introspectively, as more or less in degree, or in comparison with a feeling of cold; the field of examination remaining confined within the limits of consciousness. Or the feeling of heat may be studied with

reference to the particular seat and quality of the agitation of the nervous molecules of which it is an accompaniment, and in such a case the field of examination remains confined within the limits of the organism. But in the third place, the feeling of heat may be examined in connection with the agent in the outside world—the thermal vibrations of particles—with whose action upon the body the feeling of heat in some way corresponds. So with a train of reasoning; we may follow the argument step by step and compare the mental processes by the succession of which the conclusion is reached, as is done by the logician; and in so doing we have direct regard to nothing outside the limits of consciousness itself. Or we may consider these mental processes in connection with the nervous processes of which they are the accompaniment, and trace the correspondence of the laws which regulate the one set of processes with those which regulate the other. Or, thirdly, we may compare the several stages of the process of thought with the actual phenomena about which we are reasoning, and note whether the conclusions that we reach correspond with the facts. This is the third of the aspects from which consciousness may be regarded.

The Components of Consciousness.

—Thought and Feeling.—Regarded from the first point of view, that is to say, introspectively, and without direct reference to anything outside its own limits, consciousness is found to consist in the main of a succession of feelings; and it is found that the feelings thus succeeding one another in continuous series are of two orders, and occur in alternation, every feeling of one order being placed between two feelings of the other.

When, during a railway journey, the train enters a tunnel, we have a feeling of darkness succeeding a feeling of light, and the two feelings are divided by a feeling of change from the one to the other, which is distinct from either. When we emerge again from the tunnel there is similarly a feeling of darkness followed by a feeling of light, and interposed between them is again the feeling of change. As the train was travelling in the open we were conscious of the noise that it made, and as it entered the tunnel this noise was succeeded by a louder noise. In this case, too, we are conscious not only of the two feelings which succeed each other, but of the change from the one feeling to the other. If our journey happens to be on a hot summer's day, and the tunnel is a long one, we become conscious that

the feeling of heat that we had when we entered it is followed by a feeling of coolness, and at the same time we are aware of the change from the one feeling to the other. If the tunnel into which we are carried happens to be the tunnel at Penge, we soon become conscious of a foul and penetrating odour that follows a neutrality of feeling, as far as the sense of smell is concerned, and at the same time we are conscious of the change from the one state of consciousness to the other. When we think of a crow and a parrot as belonging to different families of birds, we have first a complex state of consciousness representing the qualities of the one bird, and then another complex state answering to the qualities of the other, and between the two is a simpler feeling of change from the one to the other state. What is true of these few cases of consciousness is true of all cases whatever. Every feeling is limited by the changes which precede and follow it. It lasts only from one change to the next; it is separated from adjoining feelings by interposed changes. On the other hand, every change, of course, implies a state to which and a state from which the change is made, and thus every change of consciousness is interposed between two feelings. So that, as before said, consciousness is a succession of feelings alternating with a succession of changes. These changes are themselves, of course, felt; are, in fact, feelings; and hence, since the states and the changes of state are both of them feelings, the question naturally arises, What is the difference between them? The answer is, that ultimately the difference is one of duration only. The states of consciousness have a duration which, although short, is appreciable; the changes of state have no appreciable duration.

While this difference in duration is the ultimate difference between the states and the changes of consciousness, there are other differences of more proximate character. While states of consciousness are virtually infinite in number and variety, changes of consciousness are but of two kinds, and resemble one another closely. The state of consciousness constituting the concept of a city is very widely different from the state that constitutes the concept of a century, and both are widely different from remembrance of a breaking wave or the sensation of a smell of violets. But the change of consciousness involved in passing from the concept of a city to that of a century of time is not widely different from the change of passing from the remembrance of a breaking wave to that of a smell of violets. Both the changes are

passages from one state of consciousness to a widely different state, and the changes are alike in respect of the wideness of the difference between the antecedent and the consequent.

Bearing in mind the fundamental division of consciousness into mental states and mental changes, we may now go on to consider each class separately, so far as it is possible to deal separately with things that are by nature mutually interdependent, and that cannot exist apart from each other.

Thought.—The changes of consciousness that have hitherto been instanced are all changes from one state to a different state, but it is evident that this is not the only change of which consciousness is susceptible. Upon our entrance in a train into a tunnel we are aware of the change from a feeling of light to a feeling of darkness, but if the train, travelling at great speed, passes under a foot bridge, we are aware of a feeling of light followed, after momentary interruption, by a feeling that is similar in every respect. At the moment of passing under the bridge the uniform murmur of the travelling train is suddenly broken by a crash, which is again succeeded by a sound identical with the preceding sound. Here, again, the change of consciousness is from one feeling, after a momentary interruption, to a similar feeling. So, again, if we think of a crow and a magpie as belonging to the same family of birds, we have a state of consciousness representing the family attributes of the crow, followed after a momentary interval by a state answering to the family attributes of the magpie, and these two states we recognise as similar. Thus we find that the changes of consciousness are of two main orders—changes from one state to a similar state, and changes from one state to a different state; in other words, the relations that subsist between states of consciousness are relations of likeness and relations of unlikeness.

We have next to notice that so long as consciousness is occupied with a state of appreciable duration, so long is the occupation of consciousness one of *feeling* in the more restricted sense; but when consciousness is occupied with the changes between states—with the relation of likeness or unlikeness that subsists between states—then is the attitude or occupation of consciousness one of *thought* as distinguished from feeling. However infinite in number and variety thoughts may be, they are all reducible into the two classes of relations of likeness and

relations of unlikeness between conscious states.

While the fundamental division of thoughts is into relations of likeness and unlikeness, there are other differences among them which necessitate their division in other ways. It is evident that the differences in the complexity and abstractness of thought are very wide indeed, ranging from such simple cognition as that ice is cold and stone is hard, to the elaborate inferences of the astronomer, the statesman, and the sociologist. But it is also evident that between these extremes there must exist every shade of gradation, and such gradual differences do not offer a good basis for classifying thoughts. A more secure method is found in the element of *novelty*, there being a marked difference between a relation which is now for the first time entertained, and one which has before presented itself in consciousness. When two states of mind are brought into apposition for the first time, and a likeness or difference is noticed to exist between them, the mental process is one of reasoning; but when two states of mind are experienced in a relation in which they have previously been in consciousness, the process is a remembrance. Thus the state of mind answering to the appearance of a tree has often been present in consciousness in various relations. We have thought of its ramifications as resembling those of a river, as resembling those of a genealogical tree, and so forth, and when these relations of resemblance are revived in consciousness, the process is one of remembering. But when we bring this idea of arboreal ramification into apposition with some other idea with which it has never been in contact before in our minds—when, for instance, we compare it with a classification of living forms and trace a resemblance between the relations of the forms of animals to one another and the relations of the branches to the trunk of a tree, then we are bringing together two ideas, which, however often they may have been separately present in consciousness, are now brought into apposition for the first time, and now that they are brought together and a relation of similarity is discovered to exist between them, the process of discerning this new relation is a process of reasoning. The next time that these two states are brought together in consciousness in this relation, we do not say that we *perceive* the similarity between them, we say that we *remember* that they are alike, and the revival of a relation that has subsisted before is in all cases a remembrance and not a ratiocination.

Memories are, however, not all alike. Some, like the foregoing example, are made up of ideas which arise in the mind without direct external provocation, while in others the ideas are called up, are imperatively aroused, by an impression made upon the sense organs from without. For instance, when I look at a tree and am impressed by the variations of light and shade upon its trunk, I remember that in every case in which similar variations of light and shade have existed, the object so appearing has been found on examination to be, not flat, but of rounded surface and solid bulk. It may be that I remember to have touched and walked round this very tree and so to have observed its rotundity and solidity. In any case the appearance of the tree calls up so imperatively the memories of roundness and solidness, that the consciousness of these two qualities becomes instantly added to the consciousness of the appearance of the tree. Yet we do not say that we *remember* that the tree is rounded and solid. We say that we *perceive* it to have these qualities; and thus we establish a difference between percepts, which are memories aroused by sensual impressions, and memories proper, in which, at the time they occur, impressions on the senses have no part. The process of thought is therefore divided into three prime branches—perception, memory, and reasoning—and the products of these three processes, are called respectively percepts, memories, and ratiocinations. Each of these primary divisions consists of a very large and various aggregate of individual components, which offer to our notice extremely wide differences of complexity. The percepts of sound differ from one so simple as the report of a gun to one so complex as the performance of an opera. The percepts of vision from one so simple as the blue of the sky to the appearance of an army on the march. Memories and reasonings offer all degrees, from the simple concepts of the child and the savage to the highly refined and elaborate notions of the philosopher and the poet. Every thought, however, whatever its character, may be relegated to one of these three categories, and then may be further resolved into the perception of a likeness or the perception of a difference.

Feeling.—While the aggregate number of different feelings is far less than that of thoughts, the former being easily numerable, while the latter are virtually infinite, yet feelings are susceptible of a classification far more minute, detailed, and intricate than is possible in the case of thoughts. As in the case of thoughts,

however, there are certain fundamental distinctions which first demand our notice.

The most striking difference that exists among feelings is the tremendous distinction between pleasure and pain, by far the most important subject of attention to conscious beings. Not only is this distinction the most important from the introspective or meditative point of view, but it is also the most important in its practical bearings, for pleasure and pain are the motives of all conduct. Conduct proceeds always in the line of least resistance, which is determined by the algebraical sum of the attractions of pleasures and the repulsions of pains. Organisms which are insensible to pleasure and pain—as, for instance, vegetables—exhibit no conduct, and conduct becomes strenuous as pleasures and pains become intense. When the normal occurrence of pleasures and pains is interfered with, so that what is normally highly pleasurable or painful approaches to neutrality of feeling, or that which normally gives pleasure becomes painful, and *vice versa*; then occur startling aberrations of conduct.

Pleasure and pain, no more than consciousness itself, are susceptible of analysis, or capable of definition in simpler terms. They are for us ultimate unanalysable facts. We may, however, notice their variations and concomitants.

Pleasures and pains both vary in intensity, but there is this difference between them, that while there appears to be scarcely any limit to the intensity of agony that may be reached by pain, the limit of intensity in pleasure is soon attained, so that even our intensest pleasures do not reach a degree of poignancy beyond that of a very moderate pain.

“Pleasures,” says Herbert Spencer, “to a large extent, and pains to some extent, are separate from and additional to the feelings with which we habitually identify them. If I hear a sound of beautiful quality an agreeable state of consciousness is produced; but if the sound is unceasing or perpetually repeated, the state of consciousness loses its agreeableness without otherwise changing. . . . Among pains the parallel fact is less conspicuous, but it is not difficult to perceive that along with the localised pain, say of a bruise or a burn, there goes an element of distress that is not localised.” He goes on to point out that both pleasures and pains may be acquired—that is to say, may become attached to feelings which did not originally yield them. Thus the feeling which attends smoking, at first painful or indifferent, becomes at length pleasurable,

and the jam in which medicine has been concealed becomes disgusting to the child. Lastly, he shows that, however different may be the feelings which yield pleasure, the feelings of pleasure that accompany them are closely alike, and the same is true to some extent of pains. "The wave of delight produced by the sight of a grand landscape is qualitatively much the same as that produced by an expressive musical cadence. There is close kinship between the agreeable feelings aroused, the one by a kind word and the other by a highly poetical thought." "Pains display this kinship still more conspicuously. Though the ordinary feelings of heat, of pressure, and of muscular tension resemble one another but little, yet when they are severally raised to high intensities, the resulting pains are nearly allied. Indeed, there is an obvious family likeness among all the peripheral pains when intense, and among all the central pains when intense."

Involved in this description is the division of both pleasures and pains into peripheral and central, the former being due to the action of some agent upon a local part of the body to which the pain or pleasure is referred, the latter to some more general action either of an agent upon the body or of the body itself, and having no definite localisation. Thus a pinch, a bruise, a scratch, or wound gives rise to pain which is referred to the seat of the injury. Loss of money or repute, anxiety or over-exertion, give rise to pains which have no definite localisation. Similarly, a warm soft touch, or a brilliant colour, arouses a feeling of pleasure which is referred to, and in some sort identified with, the locality of the agent which gives rise to it, but a beautiful verse, a pleasant conversation, the receipt of good news, or a successful effort, attended with a pleasure, which is not so referred, and is of a more general and diffused character. Although, however, the pleasures and pains of the central order are less definitely localisable than the peripheral, yet upon careful introspection it is found that they are to some extent localisable, and that in an unexpected quarter. The pains of disappointment, of anxiety, of unsuccess, of all displeasing emotions, are attended by a definite feeling of misery which is referred in every case to the epigastrium. And the pleasures of success, of achievement, of acquisition, of good repute, of æsthetic satisfaction, as upon hearing beautiful music, beholding magnificent skies or landscapes or pictures, or receiving poetic thoughts, are all attended by a definite

feeling, which is in every case referred to the same unpoetic region.

The most remarkable fact about this epigastric feeling is, that that which attends painful emotions and that which attends pleasurable emotions are alike in quality. The feeling of pleasure is, it is true, less intense than that of pain, but it is difficult to discern any difference between them beyond that of intensity, and, moreover, on the rare occasions on which the pleasurable epigastric feeling attains a high degree of intensity, it becomes indistinguishable from the painful feeling; it becomes itself actually painful.

The next difference that is observable on introspective examination of feelings is with respect to their vividness or power. When we look out into the broad sunshine we have a vivid and powerful feeling of light. When we turn away and close our eyes, and call to remembrance the feeling that we have just experienced, we have again a feeling of bright light, but this feeling is experienced in much fainter degree. When we hear an air played by a military band we have a vivid and powerful feeling of sound; when, in the silence of the night, we call up the remembrance of the air, we can reproduce it faithfully, and can reproduce the several feelings corresponding with the quality of each instrument, the blare of the brass, the thud of the drums, the nasal wail of the wood wind, but all these feelings of sound are far less powerful than at the time when they were first aroused by the band. So, the feeling of surprise that we experienced yesterday upon seeing a friend whom we believed to be in Scotland, we can reproduce to-day; but we cannot reproduce it with the intensity that it then assumed. Nor will the annoyance that we felt at losing our train the day before, reappear in anything approaching the vividness that it assumed at the time.

Somewhat resembling the foregoing distinction, but easily distinguishable from it, is the division of feelings made by Prof. Bain into the acute or intense and the massive or voluminous. "A sharp prick on the finger, or a hot cinder, yields acute sensations; the contact of the clothing of the entire body, or a warm bath yields voluminous or massive sensations. The contrast is noticeable in every one of the senses. A gas flame gives an acute feeling; the diffused sunlight gives a massive feeling. A high note on the flageolet is acute; a deep base note on the violoncello or organ is massive. The sea, the thunder, the shouting of a multitude are voluminous or massive from repe-

tion over a wide area. Taste is acute, digestive feeling is massive."

Another distinction among feelings depends on whether they are referred to the periphery or referred to the interior of the body. To the former belong all the sensations properly so called—feelings of heat and cold, of contact, pressure, colour, sound, taste, smell, and effort. To the central or centrally initiated feelings belong the emotions, fear, pride, anger; and their very numerous congeners. The essential distinction between sensation and emotion depends on considerations at which we have not yet arrived; but even upon introspective analysis it is evident that the difference between them is a wide one, and consists partly in the definiteness and, as it were, concreteness of the first as contrasted with the vague and formless character of the latter, but chiefly in the distinct reference of sensations to the periphery of the body and the central locality to which emotions are referred.

The Physiological Basis of Consciousness.—The second point of view from which the facts of consciousness have to be regarded is, as has been said, their connection with nerve action. While it is as certain as anything in this obscure region of knowledge can be, that no mutual action of consciousness and nerve action on one another is possible or is conceivable, it appears equally certain that consciousness does not exist apart from nerve action, but that only while nerve action of some kind is going on does consciousness come into existence, and, according as the nerve action varies, so do variations take place in the conscious accompaniment. It is certain, too, that not every nerve action is accompanied by consciousness. There are very many nerve actions—such, for instance as those which regulate the glandular and nutritive activities, the calibre of the blood-vessels &c.—which have no direct reflection in consciousness. There are many others, such as those which regulate the movements of the heart, lungs, and intestinal viscera, which have only faint or occasional conscious accompaniments; and there is a large amount of nerve activity in the lower forms of animal life, to which we can ascribe little or no definite conscious accompaniment. We have, therefore, not merely to recognise the connection between consciousness and nerve action, but to trace the conditions under which this connection exists and under which it varies.

The general outlines of the constitution of the nervous system are known with some approach to accuracy. It is known

that the nerve cells emit, and that the nerve fibres carry, pulses of energy from one place to another; the ultimate destination of the pulses of energy being in the tissue elements of the body, which are thereby excited and aroused to fulfil their proper function. So long as they are receiving no, or but small and feeble, streams of energy, so long the tissue elements of the body are dormant or but feebly active. When, and so long as, they receive through their nerves copious and powerful streams of energy, then and for so long they perform their function, whatever it may be, vigorously and actively. Implied in this function of regulating the activity of the several parts of the body, is the further function of regulating the proportions of their activities to one another—of proportioning, for instance, the amount of movement of the walls of the stomach and intestines to the amount of secretion from their mucous surfaces, the vigour and rapidity of the heart's contractions to the vigour of action of the voluntary muscles; the rapidity of the movements of breathing, to the rapidity with which the products of combustion are being poured into the blood.

Of the functions thus regulated by the nervous system, some are of very ancient origin—such as the functions of respiration, circulation, &c.—while others are of quite recent acquisition; such are new accomplishments, the ability to recite words, or to execute operations of any kind, that have been newly learnt. The one has existed through countless generations from time immemorial; the other is an affair of the last hour or two. Now it is found that the amount of consciousness that accompanies a nerve action varies inversely with the *antiquity* of the action. A thing which is now done, or now experienced, for the first time, is attended by a very vivid consciousness; the more often it has been done or experienced, the less vivid is the consciousness that attends the nervous operation; and when it has been done or experienced a sufficient number of times, in the history of the individual or of the race, the conscious accompaniment altogether disappears. The first time we attempt an entirely novel operation, as, for instance, to shave, to ride a bicycle, or a horse, to use a new tool or instrument, a file, a pen, or a graver, to tie a fly, or to play on the pedal clavier, we are intensely conscious of the whole affair. We give it undivided attention; each movement of each limb, of each finger, is a matter for consideration and decision; the feeling of effort is

great, and fatigue soon comes on. Similarly, when we first witness a theatrical play, a display of fireworks, the vegetation of a new climate, the scenery of a new country, the impression that it makes upon us is very powerful; we are greatly interested—we are intensely conscious of the new experience. But after we have done the operation a few times, the attention is much less closely applied, the interest is not so great, our limbs seem to move of themselves in the right direction with far less conscious decision, the feeling of effort diminishes, fatigue does not appear so soon. And so when we are well used to seeing plays or fireworks, when we have travelled much and witnessed many new scenes, or when we have lived long in a country and become accustomed to its vegetation and scenery, we cease to feel the vivid interest in them that we did at first. The vivid hues and strange shapes of the flowers, the size and luxuriance of the foliage, are taken as matters of course; they no longer arouse attention or interest; the amount of consciousness that accompanies the experience is lessened.

If a perceptible diminution of the conscious accompaniment takes place when a thing has been done or experienced a few times, and if a marked diminution occurs when it has been done or experienced many times, we should expect that when the number of repetitions of an action or an experience has become very great—has become virtually infinite—the conscious accompaniment will approach to zero. And this is what we do find, for the movements of locomotion, of swallowing, breathing, &c., are ordinarily attended by little or no conscious effort or attention.

Seeing then that the amount of consciousness that accompanies a nerve action varies inversely as the number of times that the action has been repeated, the question arises, What is the change in the nerve action that is brought about by, or that occurs with, repetition? For whatever this change may be, it is manifest that it is inimical to the occurrence of consciousness, and that the element in nerve action that is lost by repetition is the element with which consciousness is specially concerned.

The results of physiological research seem to show that the effect of a novel impression upon the special sense organs is to produce a new set or combination of nerve currents from that organ to the higher nerve regions, and that this new combination of currents acts on these higher regions in such a manner as to connect the nerve elements together in

new ways. In other words, the channels by which the elements were previously connected become supplemented by the addition of new channels running in new directions. Similarly, the initiation of a new action on the part of the organism is actuated by a new combination of nerve elements—by a set of nerve elements bound together by new bonds, connected by new channels of communication. In both cases the novelty of the nerve action depends on the novelty of the channels of communication between the nerve elements. And the newer the nerve action, the more vivid the conscious accompaniment; hence it is to this new formation of channels that we have to look for the physical condition of the occurrence of consciousness.

In a thoroughly organised nerve region the cells are definitely and completely constituted, and their communications are made by fibres that are also definitely and completely constituted, with axis cylinder, medullary sheath, and neurilemma complete. But in a region which has not yet completed its organisation we find that the cells are less definitely constituted, and that the fibres are far less sharply demarkated from the matter in which they are embedded. So little, indeed, are they differentiated from this substance, that it is often a work of difficulty, of delicacy, and of much labour to establish the difference between them; and the difficulty becomes greater the further the fibres are pursued. In short, it appears that the fibres and the ground substance in which they lie embedded are so closely alike in constitution that there is no difficulty in accepting the conclusion that is pressed upon us by other considerations, that the former are formed out of the latter by a slight re-arrangement of the component molecules.

Granting that such a formation is possible, we have to seek the agency by which it may be brought about, and the conclusion seems to the writer irresistible that this agency is the passage of currents of nerve energy in definite directions through the ground substance. Wherever such a passage of energy takes place, it will leave behind it a track, a pathway, showing where it has passed; and more important still, it will leave this pathway smoother, more permeable and more easily traversed by subsequent currents. Every subsequent current that passes that way will do its part towards scouring out the channel, until at last a passage will be formed, open, free, and readily permeable to currents that are about the mean volume of those that have previously

traversed it. In the same way we see that the passage of a man across a newly ploughed field is a matter of labour and difficulty, but when he has passed, he not only leaves a trace of his passage, but he has rendered it somewhat more easy for the next wayfarer to follow the same route by treading in his footsteps. With every subsequent passenger the track becomes better worn, more conspicuous, and more easily traversed. If the traffic is so little that the people pass across the field singly, the path will be a narrow one; if it is more frequented the path will be wider, and it will assume at last such a dimension that the mean number that is accustomed to go in one party can pass along it without jostling and without inconvenience.

The reception of a new impression by the organism becomes, therefore, in terms of nerve action, the initiation of a new line of communication for nerve energy and similarly, the performance of a novel act becomes, when so translated, the passage of nerve energy through a newly opened channel. With every subsequent like impression and with every repetition of the action, the new channels are re-traversed, and, with every such re-traversing, less and less re-arrangement of the original ground substance becomes necessary—becomes possible. At length, when the channel is fully formed, when the track is well beaten by frequent traffic, there will be no fresh disturbance of the ground substance—no further trampling on the newly turned soil—and the pathway will have reached its final fully developed form. It appears therefore that the element of the nerve-action which is at its maximum in the novel action, which decreases continuously *pari passu* with the repetition of the action, and which altogether disappears when the action has been repeated a sufficient number of times is this re-arrangement of the molecules of the ground substance of the grey matter from a disorderly chaos into a regular linear disposition; and this therefore is the physical process which underlies the occurrence of consciousness.

To use another simile, it appears that the appearance of consciousness at a certain position in the circle of nerve action has some analogy with the appearance of light at a certain position in the circle of electric action. Here is an electric circuit, whose capacity is for the most part amply sufficient to carry the current which is circulating through it. But, at places in the circuit, the calibre of the channel is very greatly diminished. Through the carbon filament the current

passes with great difficulty, under high pressure, and with intense friction; and just at this position a new phenomenon is developed. Light appears. The electric current passes, the light remains stationary. The intensity of the light varies as the difficulty which the current has in passing the luminous portion of the circuit. When the current ceases or becomes proportional to the capacity of the channel, the light disappears. The light is an epi-phenomenon, and has no community of nature with the electric current whose passage it accompanies.

Thus in the circuit of nerve action, where the channel is proportional to the volume of the current, so that the latter passes easily, there is no conscious accompaniment. But at places where the calibre of the channel is greatly diminished, and the friction of its passage is proportionately great, a new phenomenon is developed. Consciousness appears. The nerve current passes, consciousness remains. The intensity of consciousness varies as the difficulty which the nerve current experiences in passing the narrow portion of its channel. When the nerve current ceases to pass or becomes proportional to the capacity of the channel, consciousness disappears. Consciousness is an epi-phenomenon, and has no community of nature with the nerve current, whose passage it accompanies.

If the above account of the physical condition of consciousness is true, it is evident that consciousness should vary in intensity not only with the narrowness, that is, generally, the novelty of the channel through which the nerve current has to pass, but also with the volume and intensity of the current; for it is manifest from what has been said that a small current will pass without friction or overflow through a channel which could not be traversed by a current of greater volume without severe friction and the spread of the discharge into the ground substance, whose disturbance is the physical basis of consciousness. What are the facts?

A small scrap of paper covered with a pale wash of cream or blue colour appears white; but the same tint spread over a large area, as on the wall of a room, displays itself manifestly; the greater volume of the nerve currents, aroused by a more voluminous impression, having a more conspicuous conscious accompaniment. So the faint rustle of a summer breeze among the tree-tops, or the far-off murmur of the sea, although they may be distinctly heard when attention is paid to them, yet have only occasional and

faint conscious accompaniment, but the noise of a storm is a prominent and unescapable element in consciousness. So, on a higher level, the annoyance aroused by the attention of a persistent fly is a far less prominent component of consciousness than the sorrow aroused by the treachery of a former friend, and is so because of the inferiority in volume and intensity of the nerve currents originated by the former to those originated by the latter. And the same holds good throughout the whole range of nervous impressions.

The volume and intensity of the nerve current, and the degree to which it penetrates the ground substance, depend, however, upon other factors besides the mere strength of the impression that produces it; and hence we expect to find, and we do find, that the volume and intensity of consciousness vary with these other factors.

In early life the amount of unappropriated ground substance in the grey matter is very large, the nerve mechanisms that have been inherited in a completely developed condition being comparatively few. The whole development of the central nervous system is a continuous conversion of this unappropriated ground substance into definite channels and definite cells by the passage of currents in definite directions. Hence during this process of development the amount of undifferentiated ground substance that is traversed by nerve currents is very much greater than in after-life; and correspondingly we find that in youth the general vividness of our conscious life is far more intense than at maturity, and in maturity than in old age.

At any one time of life, the volume and intensity of the nerve currents will vary with the general vigour of the organism at large, and hence we find that rude health and vividness of consciousness go together, and that the general state of consciousness is most vivid at those times at which the general activity of the muscular system shows that the nerve elements are acting most freely and vigorously. Hence the greater vividness of consciousness in the morning and during active exertion.

Similarly, in times of great excitement, when circumstances are such as to call into activity a large proportion of the dormant energies of the body, and to set the whole nervous system into strenuous exertion, the vividness of consciousness becomes raised to a pitch of intensity that is almost or altogether painful. In sudden danger, in a storm at sea, in a fire

on land, in cases of accident, in battle, in tumult, in the crises of life, in the presence of imposing spectacles, the vastness and intensity of the impression made upon the organism arouses not merely this or that activity, not only sends vigorous nerve currents here and there, but arouses in a high degree the general activity of the entire nervous system, and gives rise to an unusual amount of overflow of energy from the usual channels—to an unusual amount of penetration of currents into the neutral basis-substance of the grey matter. Hence such times are times of extremely vivid consciousness. Not only are the unusual events depicted with great intensity in consciousness and impressed indelibly on the memory, but trivial and unusual occurrences taking place at such a time arouse an amount of consciousness far beyond that which they would do on ordinary occasions. Thus, in any position of great danger or excitement we become intensely conscious, not only of the occasion of the danger or excitement, but of everything that is then happening. A man who is in danger of shipwreck is conscious not only of the tumult of the elements, but is impressed with unusual and abnormal emphasis, with the details of the captain's uniform, with the faces and dress of the crew, with scratches on the paint and seams in the woodwork.

Lastly, when the activity of nerve currents sinks to a minimum, so that those that pass have not sufficient volume or intensity to force for themselves new passages in the ground substance, nor even to traverse paths that are with difficulty permeable, consciousness also sinks to a minimum, or may even disappear entirely. Such is the condition in sleep.

Seeing that consciousness attends most vividly and continuously the newer nervous operations, and attends but little or not at all those that are of old standing, we should be able to make a topographical division of the central nerve regions into those that are old and those that are new, and this division should correspond with one which divides the parts whose activity is accompanied by consciousness from the parts which are not; and this can be done.

There is no room for doubt that the oldest parts of the central nerve regions, those that are most completely organised, that have their channels thoroughly well established and insulated beyond the power of the contained current to break through, are situated in the spinal cord and at the base of the encephalon; while the higher we go towards the cortex, the

less deeply and completely organised are the regions that we meet with. Parts of the cortex are also much newer and more elevated in their function than other parts, and it is the activity of these newest and most elevated regions that consciousness most especially and conspicuously accompanies.

As it is impossible to make an abrupt demarkation between the old and the new regions of the brain, so it is impossible to draw a line of distinction between those parts whose activity has an accompaniment of consciousness and those whose activity has none. The facts are that, while the very lowest nerve regions have no such accompaniment, those which are a grade higher than the lowest have a dim, obscure, faint, and occasional reflexion in consciousness. In regions above this the conscious accompaniment is more frequent, is more distinct, is more conspicuous; and, with each degree of elevation in the nervous system, a more and more distinct and emphatic manifestation of consciousness accompanies its action.

An obvious corollary of this doctrine is at first sight startling. Since consciousness, more or less, accompanies the activity of all nervous arrangements above the very lowest; and since in waking life centres of all grades are simultaneously active, it should follow that ordinarily the totality of consciousness is made up of a large number of conscious states of different degrees of consciousness; and upon introspective examination it is found that this is so.

When engaged in a walk in the country, the immediate and most prominent occupation of consciousness may be the consideration of some difficult problem in connection with one's daily work. Beneath this, and scarcely less conspicuous—in fact alternating with it from moment to moment—are conscious states, visual, auditory, and olfactory, answering to the scenery, the sounds, the smells of the pastoral *entourage*, each series comprehending many different states of many different degrees of vividness or conspicuousness in consciousness. Beneath these again, and less prominent still, are the feelings of muscular movement answering to the movements of the limbs, eyes, trunk, and body generally, this group again including many feelings of various degrees of conspicuousness. Still less prominently occupying attention are the feelings of contact—of the friction of the garments upon one's skin, of the air upon one's face, feelings which are only occasionally noticed—only occasion-

ally become prominent in consciousness—but which, when so emerging into the upper strata of conscious life, are recognised as having had a continuous sub-conscious existence throughout. Finally, beneath these states lie states still more fundamental and less conspicuous, the states answering to the condition and activity of the internal organs:—Feelings of hunger, of breathlessness, of fatigue, or their converse states. The totality of consciousness is thus a vast complex, answering to the vast complexity of nervous states that are simultaneously active, and is of many degrees of vividness, in accordance with the degree to which each of these nervous activities involves the permeation of currents of energy through the previously untraversed ground substance of the grey matter.

It has been shown that consciousness is primarily susceptible of division into two main fundamental phases—feeling and thought—and we naturally seek the corresponding phases of nervous action answering to each. Considered in its simplest expression, nerve action is susceptible of similar fundamental division into discharges from nerve cells and transits along nerve fibres; and there is much to be said in support of the hypothesis that the accompaniments of the former are feelings and the accompaniments of the latter are thoughts. Feelings, it will be remembered, are introspectively distinguished from thoughts chiefly by their longer duration, and it is evident that the liberation of a large volume of energy from a group of cells is an affair of longer duration than the passage of the energy so liberated through its appropriate channels. Thoughts, too, have been described as relations between feelings, and it is evident that the passage of a current of energy from one patch of grey matter to another is the bringing of the discharge of the one into relation with the discharge of the other. Feelings again, of all orders, are more vivid, more powerful, are more conspicuous and prominent components of consciousness than are thoughts: and the discharge of energy from cells must always be a matter of greater moment, a more emphatic, energetic, and dynamic affair than the mere passage of currents through channels.

That a relation of likeness is perceived when the current that is started by one discharge initiates a similar discharge, and that a perception of unlikeness accompanies the converse state of things does not need exposition: but some

account may be given of the physical basis of the other varieties of thought.

Reasoning, which we have seen to be the establishment in consciousness of new relations, has for its physical basis the establishment of new connections between regions of grey matter that have never been directly connected before. It implies the burrowing out of channels in the ground substance of the grey matter from one centre to another. The establishment of a new relation in consciousness implies the establishment of a new connection between nerve centres. Remembrance of thoughts, on the other hand, accompanies the retraversal of channels that have been traversed before; while similarly, remembrance of feelings accompanies discharge of centres that have discharged before. If the remembrance of a process of reasoning is never as vividly conscious and laborious as the original process itself, the reason is that in that original process channels were in part formed, which, during the remembrance, are but retraversed, a process involving less disturbance of the ground substance and so less consciousness. What is true of one occasion of remembrance is true of all, and in every case the physical basis of the mental act is the repetition of the process that occurred when the state of consciousness was first experienced. Thus, when we remember the performance of any action, we experience a renewal of the nervous process by which the action was brought about—a renewal of activity in the nervous mechanism. On the first occasion, when the act was done, the activity of the nerve elements was great, and their effect conspicuous. On the subsequent occasion, when the act was remembered, the activity of the nerve elements was but slight, and their effect inconspicuous; *but on both occasions the very same elements were active.* Only similar activities can have similar mental accompaniments. To deny this is to reduce science to chaos. The vividness of the mental state, now that the action is remembered, is very much less than that of the mental state at the time the action was done. The feeling of remembering the striking a blow is much less conspicuous and vivid than the feeling which accompanied the actual striking, and this is consonant with the fact that the nervous activity that actuated the blow was far more intense than that which accompanies the remembrance; but even this latter has some effect upon the muscles. That the process of remembering an act is attended by muscular actions the same in kind, although less in in-

tensity, than those which occurred in the original act, is positively proved by the success of the muscle readers, who depend upon the slight muscular actions produced during intense thought for the success of their efforts. In every case, therefore, memory attends the revival of some nerve process that has occurred before.

The nature of the nervous process that underlies feeling is not in every case so clear. That feeling always accompanies a discharge of nerve elements may be regarded as ascertained; but what may be the variations of this discharge to which the several varieties of feeling correspond is not always so obvious. No doubt vividness of feeling accompanies strength of discharge, and faintness of feeling feebleness of discharge. No doubt, too, the discharge that is accompanied by an intense feeling is sharply localised—issues from a small area of grey matter—and is itself intense, that is to say, liberates from that small area a large amount of energy in a short time; while the discharge that is accompanied by a voluminous feeling issues from a widespread area of grey matter. So much is evident; but when we inquire into the nature of the nervous processes that underlie pleasure and pain, the subject is by no means so clear. It is not immediately evident why the voluminous and widespread discharge that underlies an emotion should have a pleasurable quality, while the similarly voluminous and widespread discharge that underlies another emotion should have a painful quality.

Space will not allow of the discussion of this subject, and the conclusion only can be given here. This conclusion is, in brief, that the nervous action of which pain is an accompaniment is an excessive action—is excessive, that is to say, with regard to the dynamic condition of the nerve cells at the time—while pleasure accompanies nerve action which bears a normal or just proportion to the then capability of the nerve cells to discharge. Since the dynamic potentiality of the nerve cells varies from time to time with their condition as to nutrition, and as to repletion or exhaustion of energy, it will be evident that the ratio which the intensity of their discharge bears to their dynamic potentiality will vary, even when the intensity of the discharge remains constant. Hence the quality of feeling, as pleasurable or painful, which accompanies a discharge may vary, even although the discharge itself does not vary, and here we have the explanation of the well-known fact that an action which at one time

is pleasurable may at another time be painful, and *vice versa*.

It remains to account for the epigastric localisation of both pleasures and pains of voluminous character. The explanation would appear to be this. All emotion has for its physiological basis a very widespread discharge of nerve elements, especially those of the more elevated nerve regions. Now the function of the more elevated nerve regions is to adapt the organism as a whole to its surroundings, and to perform this function the whole of the organism must be represented in each of these regions. Each region represents a different mode of action of self on surroundings. Each represents a different mode of action of surroundings on self; but in each case the representation of self is an integral factor in the function of the higher nerve region. Hence, whenever a higher nerve region increases in the vigour of its action, an increase takes place in the vividness of the consciousness of self. Now, self means stomach. That is to say, the function of assimilating food is the most fundamental of all the functions. It is the first to appear in the most rudimentary of organisms. Its existence is antecedent even to locomotion and propagation. There are many organisms which neither move nor propagate, but there are none that do not assimilate. It is the first most essential property of living beings. If we remove to a sufficiently distant standpoint to get a true perspective of the functions of the individual animal organism, it will be seen to be primarily a stomach, and, secondarily, to have attached to the stomach, limbs, members and organs by which the stomach may be filled. Hence, anything which directly affects the organism as a whole, affects the stomach, and is important only in so much, and in so far as the stomach—that is to say, the whole function of assimilation—is reached and affected by its influence. In every one of the higher nerve regions in which the whole self is represented, the preponderating element in the representation is that of the stomach, under which term are included the whole of the organs and functions of digestion and of assimilation, and hence when a large number of these regions is simultaneously active, the activity of the nerve tissue reflects and is reflected in activity of the function of assimilation. Hence on the one side the various effects on this function of the nerve disturbance that underlies emotion, the dryness of mouth, the loss of appetite, &c., and hence, on the other side, the localisation of the pleasurable or painful feeling of emotion

in the epigastrium, which is the representative locality of the assimilative function.

The Psychological Significance of Consciousness.—As has been said in an earlier part of this article, each phase of consciousness is not merely the shadow or accompaniment of some nerve action passing in the conscious individual, but is also the mirrored representation of something in the world around. When we have a feeling—say of warmth or of colour—there is a co-existence of three conditions. First, the occurrence of the mental state that we recognise as the feeling so named; second, the occurrence of a certain nervous process; and third, the condition that we now have to consider, the relation of the organism to some agent in the environment—thermal or ethereal vibration—whose impact on the organism gives rise to the nervous process which is accompanied by the feeling. Every condition of consciousness corresponds in some way with a condition of things in the world outside.

The correspondence of feeling with environmental conditions is simple, and may be thus expressed:—*Every feeling corresponds directly or indirectly with an interaction between the organism and its environment.* That is to say, the occasion of a feeling is some action, actual or possible, of the environment on the organism, or some action, actual or possible, of the organism on the environment. In the cases supposed, the feelings of warmth and of colour correspond *directly* with actions of environmental agents upon the organism. When it is said that the feelings correspond directly, what is meant is that the *quality* of the feeling, as warmth or colour, corresponds with the *quality* of the action—the thermal or luciferous vibration; that the *intensity* of the feeling, the vividness of the warmth or colour, corresponds with the intensity of the action—of the vibration; that the *volume* of the feeling corresponds with the *volume* of the action, with the extent of area of the body upon which the action takes place; and lastly, that the *time* of the feeling corresponds with the *time* of the action, being simultaneous in commencement, duration, and ending. All feelings whose correspondence with action is direct, as thus described, are termed sensations.

Feelings whose correspondence with action is indirect are termed emotions, and the indirectness of the correspondence consists in the occurrence of the feeling upon the agent *coming into relation* with the organism, without any action neces-

sarily taking place. Thus, for instance, the feeling of anger corresponds with the relation to the organism of some antagonistic agent. That is to say, the quality of the feeling (anger) corresponds with the quality (antagonism) of the agent. The *intensity* of the feeling corresponds with the *degree* in which the agent possesses the quality. In point of *time*, the correspondence is much less direct, for the feeling may occur before, during, or after the antagonistic action, or even without any actual action taking place at all; the time of occurrence and duration of the feeling having regard, not to the actual antagonistic action, but to the *relation* of antagonism coming into existence, when this is recognised, and enduring as long as this lasts.

Into the many varieties of feeling it is not necessary here to enter. A full descriptive catalogue of them and of the environmental relations with which they correspond will be found by those who are interested in the matter in "The Nervous System and the Mind," by the present writer.

The correspondence of thoughts with environmental conditions is somewhat more complicated than that of feelings, but is not really difficult to apprehend. Thoughts, it will be remembered, are relations between feelings, and hence their correspondence will be with the *relation* between the things with which feelings correspond. In other words, each of the feelings which are the terms of a thought corresponds with some environmental condition. The two environmental conditions thus corresponding have some relation to each other. It is with this relation of environmental conditions that thought corresponds. So that thought, from the present aspect, is a relation between mental states, corresponding with a relation between environmental conditions. For instance, we think that wheat is a cereal. That is to say, we compare our remembrance of the attributes of wheat with our remembrance of the attributes of other cereals, and we find that the two concepts are alike. Here is a relation of likeness between two mental states. On the other hand, there exist in the outside world wheat and other cereals; and the attributes of wheat are like those of other cereals; so that the relation of likeness between the two mental states corresponds with a relation of likeness between two sets of attributes.

It is this third aspect of consciousness that chiefly concerns the alienist, for it is from this aspect alone that it is possible to judge of the rightness or wrongness—

of the correctness or incorrectness — of thoughts and feelings.

A state of consciousness is, then, a condition in the conscious being which corresponds with some circumstance in the outside world; and when states of consciousness are erroneous, there are three possible sources of the error: (1) The fault may be in the organism; (2) The fault may be in the environment; (3) The fault may be in the process of bringing the one into harmony with the other. Errors arising in the two former ways are mistakes. Errors owing to the third cause are insane. A few examples will render the matter clear.

If we hear the noise of the waves that are actually breaking on the shore a quarter of a mile away, the state of consciousness is in harmony with the circumstances of the process, and its results are normal. If the sea is breaking there loud enough to be heard by a normal person, but we do not hear it because we are deaf, the correspondence of consciousness with circumstances fails, and fails from the fault of the organism. If, on the other hand, we do not hear it because of some peculiar atmospheric state which hinders the passage of sound, the correspondence again fails, but fails from the fault of the circumstances. If, however, the roar of the sea so acts upon us as to arouse the consciousness of voices shouting abuse, there is again a failure in the correspondence of consciousness with circumstances, but in this case the failure is neither in the organism, which receives correctly the impression, nor in the circumstances, but in the process of interpretation of the impression made on the organism; in other words, in the process of bringing into harmony the conscious state with the circumstances. Of course, this, too, is a defect of the organism, but not a defect *in* the organism. That is to say, it is not a defect of any part or subsidiary process in the organism, but in the highest nerve regions which represent the organism as a whole, and adapt it as a whole to its circumstances.

Similarly, if, owing to some defect in the auditory apparatus, our nerves are stimulated from within, we have feeling of roaring sound, and if we recognise its source to be internal to the body, the state of consciousness (recognition of absence of external source of sound) is in harmony with the circumstances. But if we attribute the tinnitus to a sudden gale, or to the singing of the tea-kettle, the state of consciousness is no longer in harmony with external circumstances—it is

erroneous. If now we are capable, by observation and reasoning, of discovering our error, it falls under the category of mistakes, but if in spite of the opportunity of rectifying it, the error is adhered to, then it is evident that what is disordered is the *process* of adjusting conscious states to circumstances, and that the error is no longer a sane one. If, upon coming in a country lane to a pool of blood, we have a feeling of horror, the state of consciousness is adapted to the circumstances. Suppose, however, that what we see is not a pool of blood, but a red pocket-handkerchief, the feeling is inappropriate. Whether it is an insane feeling or a mistake depends on the source of the error. If the lane is in shadow and a ray from the setting sun piercing the hedge and falling on the handkerchief gives it the appearance of a pool of blood, the fault is in the circumstances. If our sight is faulty and the error arises from our imperfect vision, the fault is in us (*i.e.*, in the subsidiary parts of our organisation). But if in broad day and with clear vision the handkerchief still appears a pool of blood, the error is an insane one, and now the fault is clearly in our inability to bring the state of consciousness into harmony with the circumstances.

C. MERCIER.

CONSCIOUSNESS, Disorders of.—

Disorders of consciousness group themselves naturally into disorders of feeling and disorders of thought, and may be described according to the division of consciousness affected. Thus, the disorders of feeling would include disorders of sensation and of emotion, while disorders of thought would include disorders of perception, memory and reasoning. There is, however, another mode of dividing disorders of consciousness, which for the purposes of the alienist is more convenient—*viz.*, the division into disorders of the consciousness of self, and disorders of the consciousness of the relation of self to surroundings. It will be well to glance at the disorders of consciousness from both points of view.

It is necessary to keep in mind the distinction between erroneous consciousness and disordered consciousness, as explained above, the distinction between errors which are merely mistakes, and errors which are the result of disorder, being the corrigibility of the error upon opportunity of correction being given.

Disorders of Feeling.—Normally, as has been said, the occurrence of feeling accompanies a nervous process, and corresponds with some appropriate interaction between the sentient being and the outer

world. As far as we know, feeling never occurs without a nervous process, but the nervous process, and therefore the feeling, may arise: (1) In the absence of any interaction; (2) in the presence of an interaction appropriate to some other feeling; or (3) the nervous process, and therefore the feeling, may fail to occur, in spite of the occurrence of the appropriate interaction. These are the three disorders to which feeling is liable.

(1) Feeling being but the shadow of a nervous process, will occur whenever that process takes place; and in abnormal states of body, the nervous process, that should occur only on the provocation of an interaction between the body and its surroundings, may occur spontaneously and without such provocation. Thus, normally, a feeling of cold arises only when thermal vibrations of diminishing intensity impinge on the organism and excite a nervous process; but during a rigor, the same nervous process occurs spontaneously, without the provocation of the thermal vibrations, and a feeling of cold arises, which is out of harmony with the circumstances in which the body is placed. Similarly, a feeling of sound normally attends the nervous process which is aroused by sonorous undulations acting on the ear; but in tinnitus the nervous process arises spontaneously, without such provocation, and the feeling which accompanies the nervous process is out of harmony with the circumstances in which it occurs. So on a higher level, a feeling of dread normally corresponds with the existence of an impending maleficent event in the environment; but if no such event is impending, the occurrence of a feeling of dread is out of harmony with the circumstances, and is erroneous.

If, now, these errors are corrigible; if, that is to say, the feelings are recognised to be out of harmony with the circumstances, and the circumstances are recognised as not justifying the feelings, then, although the feelings are erroneous, the process of feeling is not disordered, and the defects are not insane defects. But if otherwise; if, for instance, a feeling of dread is experienced, not only in the absence of impending disaster, but in the absence of any appearance, similitude or threatening of disaster, if the cloud appears in a perfectly clear sky, the error is an insane one. On the other hand, if appearances falsely indicate impending disaster, the feeling would, though erroneous, be normal; and then, on further and correct knowledge of the circumstances, the feeling would disappear.

(2) For feeling to be normal it is necessary that the state in the organism should correspond both in degree and quality with the circumstances. When, as in certain conditions of the retina, a feeble luminous ray arouses an intense feeling of light, the feeling does not correspond in degree with the action on the body; the former is abnormal; and when a ray of long wave length, which should arouse a feeling of red, arouses a feeling of grey, the feeling fails to correspond in quality with the action, and so is abnormal. Similarly on the higher level of emotion: when some trifling adversity of circumstances is responded to by a profound and continued depression of spirits, the amount of the feeling is out of proportion to the amount of the action, and the feeling is abnormal in degree. When, on the other hand, the well-meant and beneficent action of a relative, in rendering help under these circumstances, arouses a feeling of resentment, the feeling does not correspond in quality with the action, and again is abnormal.

If these abnormal feelings are corrigible—are recognised to be out of harmony with circumstances—they are, though erroneous, sane; but if not so recognisable they are insane. It may be that the adversity, though actually trifling, appeared or was reported to be great, and then the feeling, though unadjusted to the actual circumstances, was adjusted to the appearance of them, which is all that man can aspire to. But if, upon careful examination and explanation, the adversity appears to be trifling and the feeling still remains intense, or the action appears beneficent and the feeling still remains one of resentment, it is obvious that the process of adjusting feeling to circumstances is disordered, and that the error is no longer a sane one.

(3) It may occur that the nervous system is impaired or sluggish in its action, and that the appropriate nervous process, and therefore the appropriate feeling, fails to occur when an action between the body and its surroundings takes place. Thus, when a man is deaf, the action of the sonorous waves upon his ear fails to arouse a feeling of sound. When his optic nerve is atrophied, the action of luminiferous waves on his retina fails to excite a feeling of light; and similarly on the higher level of emotion, a dement who is in a situation of danger fails to feel the appropriate emotion of alarm; or surprised, when naked, fails to experience the appropriate feeling of shame. In this case, again, the corrigibility of the adjustment of feeling to circumstances is

the test of the sanity of the feeling. If the blind man believes that because he is in darkness there is no light, or the deaf man that because he is in silence there is no sound, the errors are errors of insanity; if they recognise that the want of feeling is due to obstruction of their own senses, the errors are errors only. If a man fails to feel alarm merely for want of opportunity to perceive the danger, the error is sane; but if the danger is open and manifest, and he fails to experience the feeling, there is a want of adjustment of feeling to circumstance, and he is insane. So long as a woman does not know that she is observed, she may be naked and unashamed and sane, but as soon as she knows she is observed and remains shameless, it is evident that there is a failure in the process of adjustment of feelings to circumstances, and that the defect is an insane one.

Disorders of Thought.—Thought being the adjustment of mental relations to environmental relations, thought is erroneous when the mental relation is out of adjustment to the environmental relation, and thought is disordered when, the data being given, the readjustment cannot be made—when, that is to say, the process of making the adjustment is disordered. Error and disorder of thought may occur on the several levels of Perception, Memory and Reasoning, and on each level the possible errors, as in the case of feeling, are three: (1) The mental relation may occur in the absence of any corresponding relation in the environment; (2) The mental relation may fail in due adjustment to the environmental relation with which it corresponds; (3) The environmental relation may have no corresponding relation in the mind. In each case the error may be sane or insane.

A. Disorders of Perception.—It may happen that an object is perceived where no such object exists. In such a case as that of Mrs. A., a relation between certain mental states composing the concept of a cat, and certain other states compounded into the concept of a certain position, was formed with such vividness and persistence as to amount to a percept of the cat in that place. But no such cat existed then and there. So far as the cat was concerned, the place was empty. Here the mental relation had no answering relation in the environment, and the occasion was one of hallucination. In this case, as is well known, the lady satisfied herself by manual examination that no cat existed there, and thus the mental relation of non-coexistence between the cat and the place was brought into har-

mony with the environmental relation of non-coexistence. The error was corrected, the readjustment made, and the effecting of the readjustment showed that the process of adjusting was not at fault and the error was not an insane one. Had she maintained belief in the actual existence of the cat in spite of clear evidence to the contrary, the error would have been insane.

(2) When a patient in delirium fancies that a wreath of smoke is a twining snake, the disorder is less profound. In such a case the impression made upon the sense should call up in due relation the attributes of intangibility, harmlessness, &c., whereas the relation that is established is one of co-existence between the appearance of a certain form in a certain place, and the attributes of tangibility and harmfulness which have, then and there, no existence. Here the mental relation has a corresponding environmental relation, but is not properly adjusted to it, and hence is erroneous. If, upon further examination, the patient recognises the wreath of smoke to be intangible and harmless, and to have the other attributes of smoke, the readjustment is effected and the error corrected; but if, in spite of opportunities for correction, he remains of the same opinion, it is obvious that the process of adjusting the internal to the external relation is disordered, and that the error is an insane one.

(3) The third disorder of perception is when the environmental relation, say the co-existence of a step with a lower level of ground beyond, fails to call up the mental relation—the association of appearance of the step with a knowledge of the difference of level. In consequence of such a failure the man falls down the step. In this case again the same rule applies in distinguishing simple error from insane error.

B. Disorders of Memory.—(1) The mental relation has no corresponding environmental relation. An event is remembered which never occurred. A man dislocates his finger in a struggle. Three days afterwards he attributes the injury of his finger to a fall down a flight of stairs three weeks before. He details minutely the manner, causes, and consequences of his fall, which never took place. (2) The mental relation is unadjusted to the environmental relation with which it corresponds. That is to say, the memory of an occurrence is erroneous. Instances of so common an occurrence need scarcely be given. (3) The environmental relation has no answering mental relation, or memory fails. An occurrence which actu-

ally took place fails to be remembered. How far failure to remember can be regarded as abnormal must always be a matter of degree, and must be decided by the circumstances of each case. There is much to be said for the view that every experience through which we pass records itself indelibly upon our nervous system, leaves behind it a trace which is capable, under favourable circumstances, of being revived and becoming apparent; but it is undoubted that in the great majority of cases the trace is so slight that circumstances of very exceptional and extraordinary character are required to revivify it. There is, however, a very vague, but still very generally understood and accepted standard by which the accuracy and retentiveness of the memory is judged, so that it is possible to say in any case whether the memory is decidedly over or under this standard. Thus a person who can enumerate the Popes, in the order and with the dates of their accession to the papacy, is allowed to have an unusually good memory; while another who cannot remember the way to the bedroom which he has occupied for a month, is considered to have an unusually bad one. By a good memory is meant, however, not merely the permanence and definition of the trace left in the nervous organisation by an experience, and therefore the persistence and vividness of the conscious memory of the occurrence, but also the ability to recall the memory into consciousness when need arises. The physical basis of this ability would appear to be the addition to those qualities already noted, of numerous, varied, and persistent connections between the region in which the registration of the event takes place and other nerve regions; so that the region concerned may readily have its activity aroused from various directions and sources.

In any case, the sanity or insanity of an error in remembrance is the ability of the person to rectify the error upon opportunity being given. In errors of memory as in other errors of consciousness, the test of sanity is the corrigibility of the error.

C. Disorders of Reasoning.—(1) A relation is established which has no corresponding relation in the environment. The old geographers thought that the earth was a flat plain, and that if they could travel far enough they would come to the edge and might fall over. They established a relation of likeness in their minds between the concept of this, that, and the other plane surface associated with a limiting boundary, and the concept of

plane surface of the earth associated with a limiting boundary. But in these surroundings there was no corresponding relation, for the surface of the earth is not plane and has no limiting boundary. So long as the opportunities and materials for forming a correct decision were not at their disposal, so long the error was sane; but a man who has the arguments for the sphericity of the earth placed fully before him and is capable of understanding them, and still maintains that the earth is a plane, is insane.

(2) A relation is established which corresponds with, but is unadjusted to an environ mental relation. If we reason that because a fern grows vigorously in a damp shady position, therefore a geranium or a tropæolum will grow vigorously under the same circumstances, we establish in our mind a new relation of likeness between the concept of the vigorous growth of a fern in these conditions and the growth of a geranium in the same conditions. But the environmental relation with which this mental relation corresponds is one, not of likeness, but of unlikeness. The growth of the geranium will be wanting in vigour, and will so be unlike that of the fern. Hence the mental relation is unadjusted to the environmental relation. If by trial we are convinced of our error, it is a mistake only. If after fair and repeated trials we cling to our error, it is a delusion.

(3) The relation in the environment has no answering relation in the mind. How far this is normal or abnormal is, as in the case of memory, largely a question of degree. Until humanity becomes omniscient there will always be multitudes of environmental relations which have no corresponding relations in our minds, and the number and quality of environmental relations which fail to arouse answering mental relations will never be the same in two individuals. Nevertheless there is a certain vague but generally accepted standard which each human being, according to his surroundings and education, is expected to reach, and if he fall conspicuously short of this standard he is regarded as abnormal, as wanting in intelligence, as undeveloped in mind, or insane, using this term to include deficiency as well as disorder of mind. In this case also the same test, the corrigibility of the defect, serves to distinguish the sane from the insane error. If a man has failed to reach a conclusion because the terms have never been presented to his mind, the defect cannot be looked on as abnormal deficiency, even if the conclusion is one known and accepted very

widely among others of his position and surroundings. But if, when the terms are placed before him, when he is afforded opportunity of supplying the defect, he fails to do so, his deficiency must be regarded as beyond the limits of normal defect.

Another aspect of disorders of consciousness is that which regards them as disorder of the consciousness of self and disorder of the consciousness of relation of self to surroundings. (See DELUSION.)
C. MERCIER.

CONSCIOUSNESS, DOUBLE (*conscious*). A condition which has been described as a double personality, showing in some measure two separate and independent trains of thought, and two independent mental capabilities in the same individual, each train of thought and each capability being wholly dissevered from the other, the memory in one condition being conscious only of what occurred in previous conditions of the same character, but knowing nothing of the occurrences in the other. (See DOUBLE CONSCIOUSNESS.)

CONSENSUAL ACTIONS, or CONSENSUAL MOTIONS (*consensus*, agreement; *ago*, I act; *moveo*, I move). Terms applied to those reflex actions which appear to depend on the reception of an impression on some part of the sensory ganglia, and its conversion into action, through a motor nerve without the intervention of the cerebrum proper.

CONSTERNATIO (*consterno*, I disquiet or disturb). A synonym of the night terrors of children.

CONSTIPATION.—It may be said that a torpid condition of the intestinal canal is of very frequent occurrence among the insane, and not unfrequently gives rise to the delusions in regard to obstruction, and the belief that there is never any action of the bowels whatever. In some instances the accumulation of fecal matter is overlooked by the medical attendant, and has given rise to unfortunate errors in diagnosis. Constipation may be a result as well as a cause of delusions. A patient believes himself to be commanded by God not to evacuate the bowels, or he is so indifferent to life or actually suicidal as to refuse to allow an evacuation.

Marcé goes so far as to state that constipation is always an accompaniment of melancholia. He attributes it to the small quantity of food taken by the patient, the diminution of the secretion of the alimentary canal, and of the feeble contractility of the muscular coats of the intestines.

THE EDITOR.

CONSTITUTION. (See TEMPERAMENTS.)

CONSTITUTION, IRRITABLE (*constituo*, I place together; *irrito*, I provoke). The physical condition in which any local disease tends to produce disturbed conditions of the nervous system—i.e., mental unsettlement.

CONSTRUCTION OF ASYLUMS. (See ASYLUM CONSTRUCTION.)

CONSUMPTION. (See PHTHISICAL INSANITY.)

CONTAGION, MENTAL. (See COMMUNICATED INSANITY, IMITATION.)

CONTAGION, NERVOUS (*contactus*, a touching, from *contango*; *nervosus*). A term for the propagation of disease by imitation, observed in hysterical and other functional disorders. (See IMITATION, HYSTERIA, EPIDEMIC INSANITY.)

CONTEMPLATIO (*contemplatio*, an attentive considering). A synonym of Ecstasy.

CONTRACTS OF LUNATICS.—The law of England as to the contractual capacity of the insane has had a somewhat complicated history, and in several important particulars is still unsettled. (1) From the earliest times to the reign of Edward III., the doctrine of the civil law seems to have prevailed that insanity vitiates all acts. "Furiosus," says Bracton (Bk. 3, c. 2, s. 8), "stipulari non potest, nec aliquod negotium gerere, quia non intelligit quod agit." The author of Fleta (Bk. 2, c. 56, s. 19) expresses himself to the same effect. Britton writes that a plea of *non compos*, if established, would avoid a man's own bond; and it appears (Pope, "Treatise on Lunacy," 217) that there is a writ in the old records "for the alien or himself to recover lands, aliened by him during his insanity." (2) From the reign of Edward III. to the middle of the present century a directly contrary rule was applied, although by no means with uniformity or consistency. It was held that *a man cannot plead his own incapacity* in answer to an action upon a deed, and probably the prohibition extended to simple contracts as well as to contracts under seal. Although this doctrine is not supported by Fitzherbert ("Natura Brevium," 202) there can be no doubt that at one time it formed part of the law of England. Coke lays it down without qualification. It was acted upon in *Stroud v. Marshall* (Cro. Eliz. 398) and *Cross v. Andrews* (Cro. Eliz. 622), was relied upon by the whole Court in *Beverley's case* (4 Rep. 123 b), and was affirmed to be law, so far as the conveyance of real property was concerned, by Sugden (Lord St. Leonards) in 1845.

The reasons advanced in favour of this

extraordinary rule, which prevented a man from relying on the visitation of God as a defence, although he was entitled to relief against the duress of his neighbour, were these. It was said that no man of full age can be allowed to disable or stultify himself. It was further contended that the lunatic, on recovering his reason, cannot know what he did when *non compos mentis*. The third and only plausible apology for the rule was the importance, as a matter of public policy, of giving legal effect to alienations. (3) In 1848-49, in the case of *Molton v. Camroux* (2 Ex. 487, 4 Ex. 17), the doctrine that a lunatic cannot set up his own incapacity as a defence to an action of contract was declared by the Court of Exchequer, and on appeal by the Court of Exchequer Chamber, to be no longer law. The subsequent history of the law as to the contracts of lunatics is extremely intricate and uncertain. It may, however, be followed if a few leading points are kept clearly in view. The doctrine of the Roman law—*furiosus stipulari non potest*—with which our ancestors started, was felt to be inconvenient and injurious when commercial relations had become a complex and necessary part of the life of England and when, moreover, a wider knowledge of the forms of mental disease disclosed the fact that insanity is not always inconsistent with contractual power. The history of the law as to the contracts of lunatics is the history of a practically continuous effort on the part of the courts both of law and of equity to repudiate the authority of the old Roman maxim, or at least to modify it to suit the changed conditions of modern society. Coke's doctrine that no man of full age shall be permitted by the law "to disable his own person," was the first attack on the maxim of the civilians. But the extravagance of this statement produced a natural reaction in favour of the earlier law, and it seemed at one time as if the contracts of a lunatic were again to be regarded as void *ab initio*, however innocent and fair might have been the conduct of the person with whom he had contracted. (Cp. *Yates v. Boen*, 2 Str. 1104; *Buller, N.P. 172*. *Pitt v. Smith*, 3 Camp. 33. Pollock on "Contract.") The movement in favour of a more rational doctrine was not, however, permanently arrested. A distinction was drawn between matters of record and matters *in pais*. The former were transactions, the evidence of which was preserved under judicial authority, such as fines and recoveries—the old forms of alienating land—statutory acknowledgments, &c. The latter were matters of less solemnity.

It was held that, while the old law applied to matters *in pais*, matters of record must on grounds of public policy be supported, and could not be set aside under any plea of mental disability. To have ruled otherwise would, it was thought, have implied a reflection on the wisdom of the court, which had permitted the transaction to be completed. This doctrine was in its turn modified; but at this point the law becomes too technical to be stated with clearness or advantage here. Matters *in pais* were in time made subject to the new law, which the English courts were adopting. *Executory* were distinguished from *executed* contracts, and it was held that, while a merely executory contract would not be enforced against a person who was of unsound mind at the date of the transaction, a lunatic should not be permitted to set aside an executed contract into which the other party had entered *bonâ fide* and without notice of the lunacy. *Niell v. Morley* (9 Ves. Jun. 478) is an express authority for this proposition. This was a suit by a lunatic and his committee to set aside certain purchases at an auction, on the ground of the lunacy of the purchaser. It was proved that three months after the auction the purchaser was found to have been lunatic for a period of three months before it. There was no evidence, however, that the vendor had notice of the lunacy of the purchaser, and the transaction was reasonable in itself. Relief was refused. This is, roughly speaking, the stage of development at which our law as to the contractual capacity of the insane has now arrived. Its growth is comparatively intelligible if we bear in mind the circumstances above explained—viz., that the Roman doctrine *furiosus stipulari non potest* was firmly rooted in our common law, that it was obviously inapplicable to a commercial society, and that our forefathers, instead of at once and expressly repudiating it, sought by modifications, exceptions, and distinctions to adapt it to the necessities and increasing knowledge of their day.

Having thus sketched the history of the law as to the contracts of lunatics, we may now consider with advantage its present position.

1. A person is said to be of sound mind for the purpose of making a contract if, at the time he makes it, he is capable of understanding it and of forming a rational judgment as to its effect upon his interests. (Cp. Indian Contract Act, s. 12.)

2. The mere existence of mental disease does not, therefore, constitute "unsoundness of mind" in the eye of law. Thus, in *Jenkins v. Morris* (14 Ch.D. 674)

A. had leased a farm to B. At the date of the lease A. laboured under the delusion that the farm was impregnated with sulphur and was anxious to get rid of it for this reason. Rational letters, written by A. with reference to the lease, were put in evidence, and it was proved that, in spite of his delusion, he was a shrewd man of business. The lease was held valid. And cp. *Lightfoot v. Heron* (3 Y. & Coll. 586).

3. A person who is usually of unsound mind, but occasionally of sound mind, may make a contract during a lucid interval. A lucid interval is the recovery of "a sound mind," as explained in proposition 1. (Cp. *Beverley's case*, 4 Rep. 123 b. *Hall v. Warren*, 9 Ves. 605. *Selby v. Jackson*, 6 Beav. 192.)

4. A verdict found on an inquisition is merely *primâ facie* evidence, whether of insanity or sanity. It throws the *onus probandi* on those who dispute it. This proposition is clearly involved in proposition 3. If an act done by a lunatic during a lucid interval is valid, then it is always competent for him to allege that a lucid interval existed at the date of any transaction. The inquisition cannot negative the possibility of this plea being well founded. It can only increase the difficulty of setting it up successfully. But direct authority upon the point is not wanting. Cp. *Faulder v. Silk* (3 Camp. 126), *Hassard v. Smith* (Ir. R. 6 Eq. 429), *Frank v. Frank* (2 M. & Rob. 315, 316 n.), *Bannatyne v. Bannatyne* (2 Roberts. 475-77), *Hume v. Burton* (1 Ridg. P.C. 204).

5. A merely *executory* contract, or an agreement entered into without valuable or good consideration by a person who was of unsound mind at the date of the transaction, will not be enforced against him. (Cp. *Elliot v. Ince*, 7 D. M. & G. 475, 488.)

6. But where a person apparently of sound, though really of unsound, mind, and not known to be otherwise, enters into a contract which is fair and *bonâ fide* executed and completed, and the property, the subject-matter of the contract, cannot be restored so as to put the parties *in statu quo*, such contract cannot be afterwards set aside either by the alleged lunatic or by those who represent him. Therefore when a lunatic purchased of an assurance society and paid for two annuities for his life, the society at the time having no knowledge of his lunacy, and the purchase being a transaction in the ordinary course of human life, fair, and of good faith on the part of the society and in the usual course of their business, it was held that the purchase money could

not be recovered from the society by the personal representatives of the deceased lunatic. *Molton v. Camroux* (2 Exch. 487, 4 Ex. 17), *Beavan v. McDonnell* (9 Ex. 309), *Price v. Berrington* (3 Mac. & G. 485).

7. Contracts for "necessaries" are in the same position and subject to the same rules as other contracts entered into by a lunatic (?)

A lunatic is liable for all necessaries supplied to him in good faith (*Bagster v. Earl of Portsmouth*, 7 D. & R. 614, S.C., reported as *Bagster v. Earl of Portsmouth*, 5 B. & C. 170). The term "necessaries" includes all expenses properly incurred for the protection of the person or estate of the lunatic, such as the cost of proceedings in lunacy (*Williams v. Wentworth*, 5 Beav. 325). A husband is liable for necessaries supplied to his wife during his lunacy, for the wife's authority to pledge her husband's credit for necessaries is not a mere agency determined by the insanity of the principal (see *Drew v. Nunn*, 4 Q.B.D. 661), but springs from the relation of husband and wife. (*Read v. Legard*, 6 Exch. 636.) It would seem, on the *ratio decidendi* in *Johnstone v. Marks* (19 Q.B.D. 509) a case under the Infants Relief Act, 1874, that where a lunatic is sued for the price of goods he may, for the purpose of showing that they were not "necessaries," prove that at the time of the sale he was sufficiently provided with articles of the kind supplied. It is doubtful whether a person who supplies "necessaries" to a lunatic, knowing him to be incapable of doing business at the time, can maintain an action against the lunatic on the ground of an implied contract. (*In re Weaver*, 21 Ch.D. 619-620, 48 L.T. 93.)

8. The contracts of a lunatic are not void, but voidable at his option. (*Cp. Matthews v. Baxter*, L.R. 9 Ex. 132.)

"The lunacy of a partner does not in itself dissolve the firm, but the confirmed lunacy of an active partner is sufficient to induce the Court to order a dissolution, not only for the purpose of protecting the lunatic, but also for the purpose of relieving his co-partners from the difficult position in which the lunacy places them" (*Lindley "On Partnership,"* p. 577). See *Jones v. Noy* (2 M. & K. 125). *Cp. Partnership Act*, 1890, s. 35, and *Lunacy Act*, 1890, s. 119. Under these statutes it is doubtful whether proof of confirmed lunacy is now indispensable.

A. WOOD RENTON.

CONTRACTURE, HYSTERICAL (*contraho*, I draw together; *hysteria*). Contraction of a muscle or set of

muscles depending on hysteria. (See HYSTERIA.)

CONVICTION DELIRANTE. — A French term for the mental condition in which there is no morbid perception, but only a false conviction or conception.

CONVOLUTIONS OF THE BRAIN. — Gratiolet was the first to make a classification of the convolutions of the human brain based on comparative anatomy. His system was published in his remarkable "*Mémoire sur les Plis cérébraux de l'Homme et des Primatés.*" Professor Turner (Edinburgh) has slightly modified it in his work "*Convolutions of the Human Cerebrum topographically considered.*" To him we are indebted for permission to copy the woodcuts subjoined.

A. *Convolutions of the External Surface* (Figs. 1 and 2).

I. **The Frontal Lobe** (Fr, Figs. 1, 2, and 3).

The Orbital Lobule.—It rests on the roof of the orbit, and presents several irregular convolutions. Two of these bound the sulcus of the olfactory bulb (17 and 1^{'''}, Fig. 3). Others are merely termed "orbital convolutions" by Gratiolet, and vary greatly, but Professor Turner distinguishes two, a posterior one (1^{''}) in front of the most anterior convolution of the island of Reil, and another, external (1^{''''}), which unites with the frontal convolution next described.

1. *The inferior frontal or supra-ciliary convolution* (1, 1, 1, Fig. 1).—It is with the posterior third of this convolution (on the left side) that Broca associates the faculty of language.

2. *The middle frontal convolution* (2, 2, 2).

3. *The superior frontal convolution* (3, 3, 3) consists of two minor divisions, one of which blends with the upper part of the first ascending convolution; the other bounds the great longitudinal fissure anteriorly.

(The middle and superior convolutions are so intimately connected that it is often difficult to distinguish between them.)

Gratiolet observed these convolutions in their simplest form in idiots; those on the right and left side presenting a remarkable symmetry. "Such symmetry is never observed in the normal brain of the white man. The superior convolution, twisted in a thousand directions and often divided into two secondary ones, is never like its fellow. The second convolution presents irregularities still more striking; it might be said that Nature by a last effort, for the purpose of accommodating more convolutions at this region, has, if

FIG. 1.

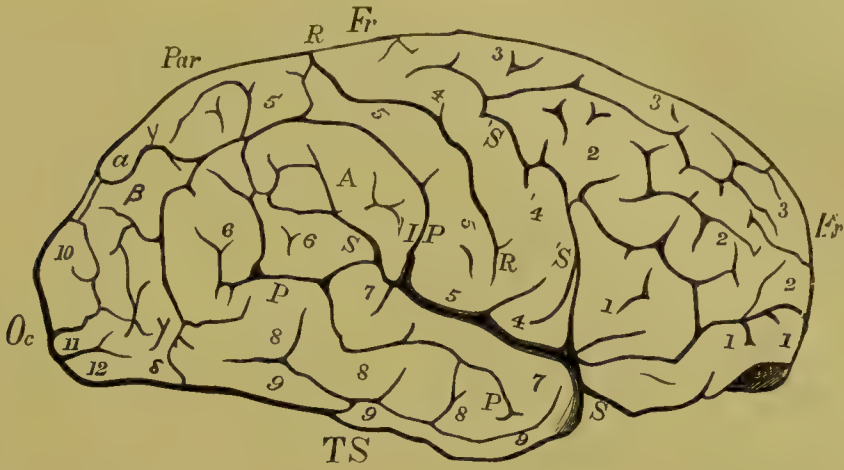


FIG. 2.

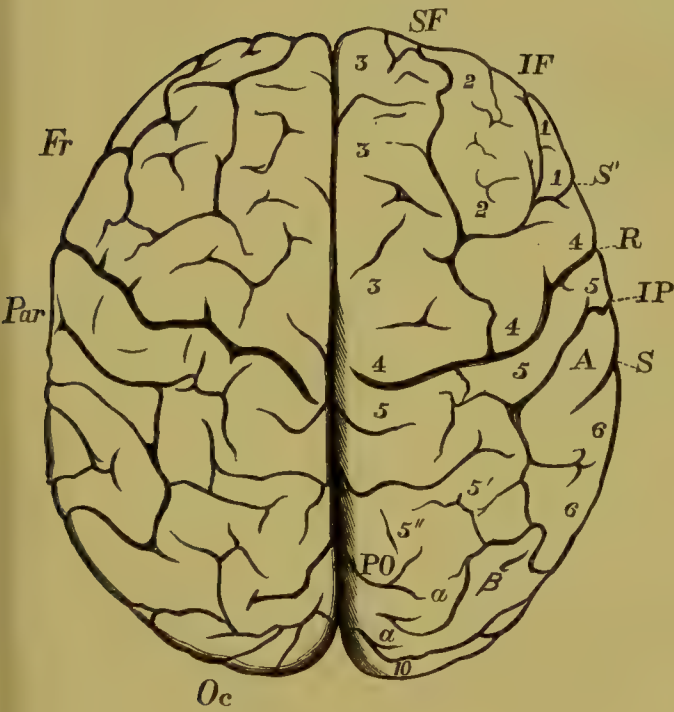


FIG. 3.

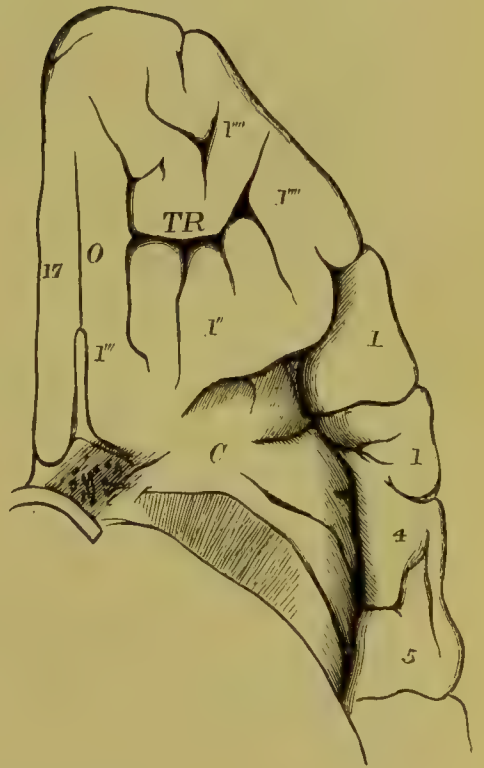
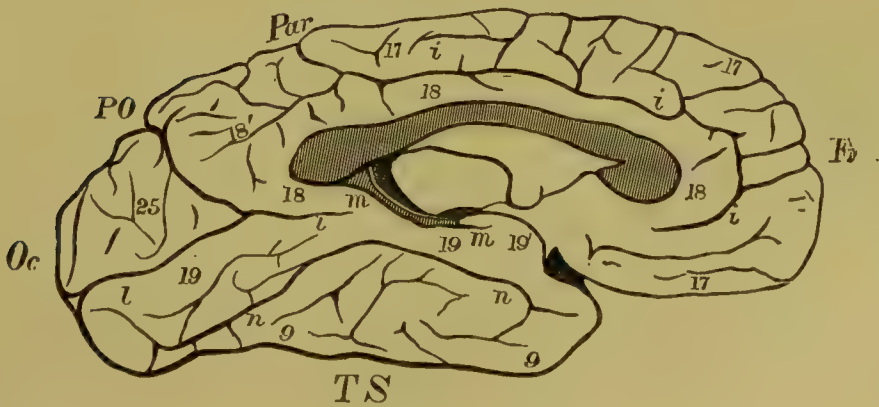


FIG. 4.



I may so express myself, crumpled and crowded them together" (*op. cit.* p. 60).

4. *The Ascending Frontal Convolution* (4, 4, 4).—Gratiolet called this the ascending *parietal* convolution because it lies on the parietal side of the ascending limb of the fissure of Sylvius (S', S').

II. **The Parietal Lobe** (Par, Figs. 1 and 2).

1. *The Ascending Parietal Convolution* (5, 5, 5).—Above and behind, it forms a lobule (5', 5''), bounded posteriorly by the parieto-occipital fissure. This is connected with the occipital lobe by Gratiolet's superior connecting convolution ("pli supérieur de passage"). Together they form on each side of the longitudinal fissure numerous folds.

2. *The Supra-marginal Convolution and Lobule* (A) bound the remaining portion of the fissure of Sylvius superiorly. According to Gratiolet this lobule is peculiar to man. From its summit several secondary convolutions frequently arise which blend with the superior annectent convolution. M. Gratiolet informed the writer that they were absolutely wanting in all the microcephalous brains he had examined, their presence forming, in his opinion, a character peculiar to the normal human brain.

This lobule blends with the next convolution, viz. :—

3. *The Curved or Angular Convolution* (6, 6), which winds round the posterior end of the parallel sulcus, and consists of an ascending and descending portion, the latter being separated from the fissure of Sylvius by the posterior marginal (or superior temporal) convolution.

III. **The Temporo-sphenoidal Lobe** (TS, Fig. 1).

(1) *The Superior Temporal Convolution* (7, 7).—It forms the posterior margin or border of the fissure of Sylvius, and is bounded posteriorly by the parallel or antero-temporal fissure (P).

(2) *The Middle Temporal Convolution* (8, 8, 8).

(3) *The Inferior Temporal Convolution*, (9, 9, 9).—The middle and inferior convolutions are united by the third and fourth annectent convolutions of Gratiolet to those of the occipital lobe.

IV. **The Occipital Lobe** (Oc, Figs. 1 and 2).

(1) *The Superior Occipital Convolution* (10).

(2) *The Middle Occipital Convolution* (11).

(3) *The Inferior Occipital Convolution* (12).—On the anterior margin of the occipital lobe are certain connecting con-

volutions, which Gratiolet considered of great interest.

(a) *The Superior Annectent* (or connecting) *Convolution* (a).—It is, in short, a prolongation of the lobule of the second ascending parietal convolution, and connects it with the summit of the occipital lobe.

(b) *The Middle Annectent Convolution* (β) passes from the curved convolution to the occipital lobe.

(c) *The Inferior or Third and Fourth Annectent Convolutions* (γ and δ) connect the middle and inferior convolutions with the occipital lobe.

V. **The Central Lobe**. *Insula* (Island of Reil, C, Fig. 3).—This lobe is hidden by the convolutions which go to form the Sylvian fissure—the curved convolution, the supra- and posterior-marginal convolutions, the ascending frontal and parietal convolutions, and the inferior frontal. The convolutions of this lobe present a radiating appearance, and are in close relation with the convolutions forming the superior margin of the fissure of Sylvius.

B. *Convolutions of the Internal Surface* (Fig. 4).—These are much less complicated than those of the external surface.

The Fronto-parietal Lobe (Fr, Par) consists of two stages or convolutions separated by the *fronto-parietal* or *calloso-marginal fissure* (Fig. 4, i, i, i), the inferior of which—the *convolution of the corpus callosum* (18)—bounds that body. At first a single convolution; it ascends and becomes more complex in character, its posterior extremity expanding into a *quadrilateral lobule* (18') marked by shallow indentations. Superiorly its lobulated appearance made Rolando compare it to the comb of a cock. This convolution is the *gyrus fornicatus*. The superior convolution is tortuous, and is called the *marginal convolution*. It presents a terminal lobule corresponding to the summit of the two ascending convolutions of the external surface of the frontal and parietal lobes.

In the *Temporo-sphenoidal Lobe* (TS, Fig. 4) Gratiolet distinguishes three convolutions, the (*internal*) *superior temporal*, the (*internal*) *middle temporal*, and the (*internal*) *inferior temporal*.

(1) The first, the "*fascia dentata*," or *dentate convolution*, forms the floor of the dentate fissure of Huxley (*m, m*) or anterior portion of the fissure of the hippocampi of Gratiolet. It is indicated by the short parallel lines above *m, m*.

(2) The second is also called the *hippocampal* or *uncinate convolution* (19, 19). It is slender, longitudinal, but somewhat flexuous, and forms the inferior border of

the fissure of the hippocampi. Anteriorly it forms the lobule of the hippocampus, which, curving backwards, becomes the *crochet* of the hippocampus (19'). Posteriorly it joins the convolution of the corpus callosum by means, according to Gratiolet, of a connecting convolution, which interrupts the line of the hippocampal fissure—that is to say, separates the calcarine from the dentate fissure. Frequently the hippocampal convolution is described as part of the convolution of the corpus callosum.

(3) *The Third Convolution* (9, 9) is below the collateral fissure of Huxley (*n, n*). It corresponds to the external inferior temporal convolution, of which it is a continuation.

The Occipital Lobe (25, Fig. 4) is contained between the fissure of the hippocampi, which posteriorly forms the calcarine fissure of Huxley, and the internal perpendicular or parieto-occipital fissure (PO). It is triangular in form, and is called the cuneus.

Ferrier's topography and nomenclature of the cerebral convolutions, although based on the system of Ecker, are essentially the same as those adopted by Professors Turner and Huxley.

THE EDITOR.

[References.—In addition to the writings of Gratiolet and Turner, see Ecker's *The Convulsions of the Human Brain*, 1873; *The Functions of the Brain*, by Dr. Ferrier, second edition, p. 471.]

CONVULSIONNAIRE (*convulsio*, from *convello*, I tear). A name given to those affected by the imitative or hysterical convulsions and other like epidemics of the Middle Ages. (See EPIDEMIC INSANITY.)

CONVULSION, SALAAM (*convulsio*, from *convello*, I tear; *salaam*, Hindos., a bowing, a term of salutation). A synonym of *Eclampsia nutans*.

CONVULSIONS. (See EPILEPSY.)

CONVULSIONS, CATALEPTIC (*convulsio*, from *convello*; *καταλαμβάνω*, I seize or attack). The convulsive movements of hysterics attended with catalepsy, or the rigid convulsive muscular contraction observed in certain forms of catalepsy. (Ger. *kataleptische Krämpfe*.)

CONVULSIONS, CHOREIC (*convello*; *χορεία*, a dancing). Convulsions having the character of chorea, being abrupt, irregular, and increased by voluntary effort. (Ger. *choreatische Krämpfe*.)

CONVULSIONS, CLONIC (*convello*; *κλόνος*, a violent confused motion). Intermittent contractions of any muscle or set of muscles; sudden contractions alternating with relaxation. (Fr. *convulsions cloniques*; Ger. *Wechselkrämpfe*.)

CONVULSIONS, EPILEPTIC (*convello*; *ἐπιλαμβάνω*, I arrest). The violent tonic and shock-like clonic spasms of a typical epileptic attack, with complete unconsciousness and cyanosis. Also the pseudo-convulsive phenomena of minor epilepsy. (See EPILEPSY.)

CONVULSIONS, HYSTERICAL (*convello*; *hysteria*). The convulsive-like attacks occurring in hysterical subjects. (See HYSTERIA.)

CONVULSIONS, IDIOPATHIC (*convello*; *ἴδιος*, peculiar; *πάθος*, an affection). Convulsions which have not a distinct cause in recognisable disease of the nervous system. (Fr. *convulsions idiopathiques, convulsions essentielles*; Ger. *spon-tane Krämpfe*.)

CONVULSIONS, INFANTILE (*convello*; *infans*, a child). Convulsive seizures commencing with a more or less prolonged tonic contraction, succeeded by tonic spasms of particular muscles or groups of muscles of the face, arms, legs, or of one side of the body, occurring once or twice only or frequently, and occasionally leaving some impairment of motor power or complete paralysis. The usual premonitory symptoms are starting, disturbed sleep, squinting, or contraction and palmar flexion of the thumbs. The attack supervenes with momentary loss of consciousness, irregular respiration, lividity of face, and fixed staring of the eyes. The attack may last a few minutes or some hours, may consist only of a short tonic spasm or of tonic spasms succeeding each other so rapidly as to simulate clonic contractions like those of an epileptic seizure. A severe attack may in fact resemble an epileptic fit very closely, but the contractions are never so severe as in typical epileptic convulsions. In the majority of instances recovery takes place, but if the attacks recur frequently they are often fatal, either by inducing cerebral congestion or asphyxia. They may be caused by fear, anger, improper diet, excessive variations of temperature, tubercle, dentition, entozoa, rickets, diarrhoea, hydrocephalus, paroxysmal cough, &c., but in the majority of cases there is usually a direct neurotic heredity. Whenever attacks continue after their cause has ceased, the condition is inseparable from epilepsy. Some of the children in whom the fits after lasting a year or so, have ceased, become epileptic in later childhood or at puberty. The mental effects of prolonged infantile eclampsia are similar to those of epilepsy occurring in the very young. (Fr. *éclampsie des enfants, convulsions de l'enfance*; Ger. *Kinderkrämpfe*.)

CONVULSIONS, ROTATORY (*convello*; *roto*, I turn). Convulsions accompanied by a tendency to rotate the body. (Ger. *Drehbewegung*.)

CONVULSIONS, STATIC (*convello*; *sto*, I stand). A term applied to conditions usually preceding the true convulsive seizure of epilepsy, such as the backward, forward or rotatory movements. They are not true convulsive movements, but partake more of the character of motor auræ. (Ger. *statische Krämpfe*.) (See EPILEPSY.)

CONVULSIONS, STRETCHING (*convello*). Another term for general or tetanic convulsions, which, owing to the generally greater power of the extensor muscles, straighten the limbs and body, and so put the whole body on the stretch. (See Hysteria, Hysterical Opisthotonos.)

CONVULSIONS, TONIC (*convello*; *tónos*, tension). Persistent contractions of any muscle or set of muscles. (Fr. *convulsions toniques*; Ger. *Starrkrämpfe*.) (See Hysteria.)

CONVULSIONS, UNILATERAL (*convello*; *unus*, one; *lateralis*, belonging to the side). Convulsions affecting one side of the body only. (See Epilepsy, Hysteria.)

CONVULSIVE CENTRE (*convello*, I tear; *κέντρον*, the centre). A centre believed by some to exist in the *pons Varolii*, the excitation of which, as by venous blood or some lesion, or as a functional defect, causes convulsive seizures. (Ger. *Krampfcentrum*.)

CONVULSIVE COUGH OF PUBERTY (*Cynobex Hebetis*).—This affection falls, obviously, under the domain of nervous or psychological disorders.

Symptoms.—Some thirty years ago Dr. Brown, of Rochester, sent us for examination a boy, aged 14, the subject for several months of an incoercible convulsive cough. The parents belonged to a nervous family; he was himself nervous, and whilst under examination was odd in movements and restless in manner. Small, thin, pale, and fair, but quick in movement and in response, he exhibited all the characteristics of extreme "delicacy." Careful examination brought to light no sign of special structural disease, and at the end of the examination we found ourselves no further than at the beginning, and could say of the patient only that he was a very delicate and nervous boy. But when preparing to leave the room the lad, startled by a sudden noise, began to cough, and had a paroxysm of coughing, which lasted for over a minute. The paroxysm consisted of a succession of loud, dry, clanging, convulsive coughs, varying in intensity and

duration, broken into irregular bars or phrases, and resembling at one time the barking, and at another the howling, of a dog. During the continuance of the paroxysm the patient appeared to be much distressed; his face was swollen and faintly livid, the eyeballs became prominent and congested, the body (bent forwards) was shaken by the violence of the coughing, and the hands crossed upon the chest convulsively clutched his clothes. At the close of the paroxysm the patient appeared to be a little dazed, and was somewhat giddy. Recovering himself in a few minutes he passed a quantity of limpid urine.

The malady of this patient lasted over thirteen months, and then slowly subsided. No ill effects followed, but we learned some years afterwards that the patient was still nervous, and that a dry convulsive cough was readily provoked by trifling colds.

In 1868 we were consulted by a clergyman residing in the east of London about his son, who was supposed to have some grave disease of the lungs. The boy was thirteen years of age, well nourished, fair, with all the characteristics of a nervous temperament, and the history of some minor nervous troubles. The parents and their relations were nervous, and the father was subject to involuntary movements of the right arm and hand, and occasionally found difficulty in writing. The boy's malady consisted in daily recurring violent paroxysms of convulsive cough which produced some exhaustion and distress, and had provoked on one occasion an involuntary discharge of urine, and on several occasions vertigo. The affection had begun six months before, and latterly there had been some loss of flesh, strength, and colour. No school would keep the boy; the members of his family were distracted; and the father was perplexed and despairing. Repeated examinations of the patient by myself and by others failed to elicit evidence of the existence of structural disease in any part of the body; all that we could discover was a somewhat *bizarre* condition of the nervous system; and all that we could say was that the malady was nervous, and that it was devoid of permanent peril to life or to health. In this case the affection lasted nearly three years, but then recovery was complete; and through a careful regimen, strict discipline, and change to the seaside, the *bizarre* condition of the nervous system disappeared.

In a third case—the daughter of a clergyman about whom we were consulted in 1875—the attacks were of the same general character, but occasionally they

became so severe as to produce squinting and temporary unconsciousness. This girl was thirteen years of age, and her malady had begun with the advent of menstruation a few months before. The offspring of nervous parents, she also was intensely nervous, and exhibited from time to time divers signs of nervous disorder. The noise made by this patient during her attacks was so loud and so peculiarly distressing to others that, with the exception of the mother, no one would remain in the house during their continuance; and even the mother confessed to us that she felt as if the limits of her own endurance were at hand. After a few months' unsuccessful treatment, this patient was cured quite suddenly through the agency of a fright. One day, whilst in a paroxysm of coughing of exceptional mildness, it was proposed to perform an operation upon her throat, and a box of cutting instruments was laid open before her. Without a word she swiftly fled from the room and managed to keep herself successfully concealed until late at night. When she returned to her mother she had lost her cough, and three years afterwards we were told that it had never returned.

It will have been noticed that in all the cases of which we have spoken, the subjects of this pubertal cough, and also their parents and families, were "nervous." But in a patient whom we saw in 1880 with Mr. Aikin this was not the case. The parents were healthy, and had come of a healthy stock, and the only signal evidence of nervousness in the patient was the existence of the malady. The boy was between fourteen and fifteen years of age, had the build and appearance of health, and never suffered in any serious way until the "breaking of his voice," when his malady began. The attacks in this case were not violent, but they were accompanied by irregular action of the heart, and occasionally by bronchial *râles*. The patient recovered within six months, but twice within the ten years that have elapsed since then he has had an attack of bronchitis, accompanied by a little bronchial spasm.

All the cases to which we have adverted are examples of the severest forms of the malady of which we are speaking, and they present the chief varieties of it which have come before us in practice. But the attacks are slight as well as severe, and there are other varieties of it which we have thought unnecessary to notice. Except in degree, the cases so closely resemble each other that, from the study of one we may learn the characteristic features of all.

We need not therefore occupy space with further illustrations.

Sex.—Of the four examples of this convulsive cough of puberty, which we have recorded, three have occurred in boys, and it might be excusably inferred therefrom that this represented the numerical relation of occurrence between the sexes. But it is otherwise. The cases referred to were chosen in illustration of the varieties of the malady, and of the whole number which has come within the range of our experience, the greater was found in girls.

Before proceeding to discuss the nature of this malady, it may be well to point out that the cough, which is its characteristic feature, is not an ordinary nervous cough; that it is not the ordinary cough of local irritation, of related pathological changes, of reflex action, of pneumogastric trouble, or of mere hysterical disorder; but that possessed of certain distinguishing characteristics, existing always in the same general environment, and occurring almost exclusively within the range of those physical and psychical changes which mark the advent of puberty and accompany the final evolution of sex, it has a well-defined individuality of its own, and claims the right of separate consideration and naming.

Not generally recognised.—It is true that little, if any, notice of this malady has been taken by previous observers, for, after a search through the chief annals of medical literature, made by Dr. Delépine and the writer, there were found, with two exceptions, only distant and obscure allusions to the convulsive or barking cough of puberty. The first notable exception occurs in the sixteenth volume of the *Transactions of the Clinical Society*, where, in the presidential address delivered by us, a brief description of this malady will be found. The second notable exception will be found at page 491 of the first volume of Sir Morell Mackenzie's *Manual of Diseases of the Throat and Nose*. There the disease is plainly recognised, but the author's description of it differs in some important points from ours. It is described as occurring in young girls between sixteen and twenty, of having been met with in boys between fourteen and sixteen, and of having been seen several times in children between five and fourteen years of age. Notwithstanding such scant notices as have been found of this malady, we have little doubt that its existence has long been known to practised clinical observers; and we can find no just grounds for regarding it as one of our new diseases. In proceeding to notice the convulsive

cough of puberty, one must keep in view the extent, variety, and character of the changes which occur in the organism during the final evolution of sex. They are manifold as well as profound; they are central as well as peripheral; they are psychical as well as physical; they are moral as well as mental; and they are accompanied and penetrated by a fresh awakening of the self-consciousness which carries the organism into a new arena of thought and of life in its relations to outward life.

Nature of the Malady.—It cannot be doubted that through this procession of changes, so many and so varied, all the ascending nervous hierarchies are actively at work, creating new activities, establishing new relations, adjusting new environments, establishing new control. One obvious result of those excited activities is that the whole central nervous system is carried into a condition of unstable equilibrium and is ready in an irritable organism to explode through small provocations into convulsive action; and, when one remembers that peripheral changes are also undergoing concurrent evolution, that one of the principal seats of them is the laryngeal region, and that the nervous hierarchy under which they exist is now perhaps the most active of all, it is not difficult to understand why troubles should occur in this region at this time, and why, when they do occur, we should expect them to be of a nervous character. In these central and peripheral activities we have conditions ripe for disorder; and either autogenetically or deuterogenetically, from inborn disturbances, or from extrinsic irritations, we can see without stretch of vision how this malady may arise. When, furthermore, we remember that for the most part the family and personal history of the patient is nervous, that no adequate local changes are to be found in the pharynx, in the larynx, or in the lungs; that the cough and other disturbances of the respiratory movements are rhythmic and paroxysmal; that no structural degenerations follow in the wake of the malady; and that it disappears with, or shortly after, the complete evolution of sex, we cannot doubt—at least, we think, we cannot justly doubt—that this convulsion or barking cough of puberty (*cynobex hebetis*, *pubertatis tussis caninus*) is a malady of nervous origin, character, course, and issues. But in how far the inborn changes which engender it are central, or in how far peripheral, and to what extent they are modified or controlled by extrinsic influences, we are at present unable to determine.

Prognosis.—Concerning the prognosis of the malady, it will be sufficient to say that in all the cases of which we have had any direct knowledge—and they number over twenty—the course, although usually tedious and always somewhat prolonged, has ended eventually in complete recovery.

Treatment.—We proceed now to speak of the treatment of this malady. Unfortunately we are compelled to confess our belief that we have not succeeded by any treatment which we have hitherto employed in shortening to a great extent the duration of the disorder. Nevertheless, we are as sure as we can well be about anything of this kind, that by an appropriate regimen, by sedative applications to the interior of the throat, and by the administration of certain internal remedies, we have, without disturbance of the patient's health, succeeded in restraining the cough within harmless limits, in averting secondary evils, in improving the general health, and in guiding the course of the malady to a somewhat speedier issue than otherwise it would have reached.

With respect to regimen, we have to observe that in all the cases brought before me the patients were plainly overfed; that, in addition to ordinary meals, there were frequent "interludes" of different kinds of food, mostly preserved; and that alcoholic beverages of some sort or another were being freely administered. For our own part, we are unable to believe that the laws of digestion are suspended because an organism is troubled with a malady of this kind; that there is no physiological limit to the administration of food in disease; and that we are not certain to make a bad fire when we keep putting too many coals thereon.

Improvement has almost invariably followed the enforcement of a simple, but liberal, dietary arranged into three, or at most four, meals a day; abstinence from alcohol; cold or tepid sponging; warm, but not too warm, clothing; active outdoor exercise; early hours; and general discipline. Poor platitudes these, it may be said. Yes, plainly so on paper, but not so in practice, where they can effect so much, and are yet overlooked so often.

Of local applications to the interior of the throat, only two have done good service; the first is glycerine of borax with oxychloride of bismuth and morphine; and the second is the same combination with the substitution of cocaine (10 per cent.) for morphine. These applications should be brushed over the whole interior of the throat after each meal, and also at bedtime. In using cocaine, care must be taken in its application to the larynx,

which is sometimes provoked by it into dangerous spasm.

Among the internal remedies which we believe to be of use in this malady there are also two: the one is a syrup of the bromide of quinine and iron, with small doses of arsenic; and the other is a pill of reduced iron, valerianate of zinc, belladonna, and nux vomica.

This latter combination, often successful in controlling the cough, must be given in doses, slowly increased until the physiological effects of the belladonna become apparent, and then slightly diminished; the amount administered should be maintained at that level.

There is still another remedy to which, in laryngeal nervous affections of this kind, specialists in throat disease attach great importance; and that is a long sea voyage. Undoubtedly it is sometimes successful, but undoubtedly also in our experience it is oftener the reverse. Furthermore, it is costly; it is difficult to carry out; it interrupts the work of education; and occasionally in boys it begets habits of a kind which permanently interfere with a right conduct of the business of life. For our own part, when we now review the experience of the effects of sea voyages upon young invalids, we are more strongly impressed than ever we were before with the necessity of extreme caution in prescribing them.

But, although in all these ways the benefits which we shall be able to confer upon our patients may not appear to be great, there is one way in which, perhaps, we may be enabled to make them great beyond expectation or expression. We have seen that almost all the subjects of this malady are "nervous," and from this we know that they tend to become self-conscious, to dwell upon their disorders, to give way to self-distrust, to take interest only in themselves, and at last to fail in all that is useful as well as in all that is high in life. Coming at this early time of youth under our instruction and influence, we may help them to strive after self-effacement, to aim at some higher ideal than themselves, to find in labour strength, and through suffering tranquillity; and so, transfiguring their lives, to discover therein sacrifice instead of selfishness, and gladness instead of gloom.

ANDREW CLARK.

CONVULSIVE TREMOR (*convello*; *tremor*, a trembling). A term applied to an affection characterised by paroxysms of clonic convulsions affecting the voluntary muscles, and unaccompanied by loss of consciousness, sometimes attended by emotional disturbances, vertigo and pain

in the head. The affection is considered by some to be due to irritation of motor nerve centres in the cerebral cortex, with hyperæsthesia of the medulla oblongata and the upper part of the spinal cord. (Ger. *Zitterkrämpfe*; *das Zittern*.)

COPROLALIA (*κόπρος*, filth; *λαλιά*, speech). The involuntary use of obscene words, a symptom of mental disorder. (See HYSTERICAL INSANITY, PUERPERAL INSANITY, OBSESSION, &c.)

COPROPHAGY (*κόπρος*, excrement; *φαγῆναι*, to eat). The act of feeding on excrement, an occasional symptom in hysteria and mania.

CORTICAL EPILEPSY (*cortex*, the bark; *ἐπιλαμβάνω*, I seize or arrest). (See EPILEPSY, CORTICAL.)

CORYBANTES.—Those who suffered under corybantism among the Greeks were in state of wild fury. They appear to have been the subjects of hysterical excitement. Alfred Maury points out that in the tragedy of "Hippolytus" the Chorus exclaims in addressing Phædra, "Oh, young girl, a god possesses thee; either Pan or Hecate, or the venerable Corybantes or Cybele excite thee." Those who are troubled in mind by a phantom are called *ἐνθεοί φάσματός τινος*, and those who are possessed by a divinity do everything which he considers to be necessary. (Cf. Euripides, ed. Barnes, p. 223. Sch. ad. Hipp., v. 141. Vide *Dæmoniaques*, Encyl. Méd. Paris, 1884, p. 122.)

CORYBANTISM (*κορυβαντισμός*, purification by the rites of the Corybantes or priests of Cybele, accompanied by wild music and frantic dancing). An old name for a state of excitement (probably hysterical), accompanied by choreic movements, fantastic visual hallucinations and sleeplessness.

COTTAGES, THE INSANE IN. (See BOARDING OUT.)

COUGH, HYSTERICAL. A cough which does not depend on any affection of the respiratory organs, but on a functionally disturbed condition of the nervous system. (See CONVULSIVE COUGH.)

COUNTY ASYLUMS. (See ENGLAND AND WALES.)

COUNTY COUNCILS (England) and their Relations to the Administration of the LUNACY LAWS.—Until 1889 the administration of the lunacy laws, as they dealt with pauper lunatics, was, with some few exceptions, entirely in the hands of the justices assembled in quarter sessions, and of committees of justices appointed thereat. In that year the Local Government Act took from them the major part of their duties and transferred them to the local authorities constituted

by the Act, leaving with the justices only certain judicial functions. The division of duties between these two bodies will be best defined by quoting the sections of the Act bearing thereon.

Section 3 of the Local Government Act provides that "there shall be transferred to the council of each county, on and after the appointed day, the administrative business of the justices of the county in quarter sessions assembled, that is to say, all business done by quarter sessions, or any committee appointed by the quarter sessions, in respect of the several matters following, namely (*inter alia*) the provision, enlargement, maintenance, management, and visitation of, and other dealings with, asylums for pauper lunatics."

Section 86, sub-section 2, provides that "Nothing in this Act shall transfer to the county council, or any members thereof, the jurisdiction of quarter sessions or any justices, in relation to the removal, reception, or detention of a lunatic into or in an asylum, or to making orders respecting the payment, otherwise than out of the county fund, of charges incurred on account of any pauper lunatics, or respecting any property of such lunatic, or respecting this settlement or chargeability, or in relation to any appeal touching the said matters."

Though the Act uses in these sections the words "county council," section 34 subjects the councils of county boroughs (these are boroughs which, having certain qualifications as to population, &c., are set out to the number of sixty-one in the third schedule of the Act) to all the duties and responsibilities of a county council. Again, there are certain boroughs, thirty in number, which are not county boroughs, and are specified in the fourth schedule of the Lunacy (Consolidation) Act. The City of London is included in this category, and the common council are the authorities. The councils of all counties, county boroughs, and the last-mentioned boroughs, are "local authorities" for the purposes of the Lunacy Act, and are herein referred to as *local authorities*.

The change thus made in the constitution of the bodies which regulate pauper asylums and their inmates, was most important, and chiefly for two reasons. First, whereas formerly the justices were appointed by the Lord Chancellor, on the nomination of the Lord-Lieutenant of the county, now the councillors are elected, and thus, in theory at least, just those classes from whom inmates of pauper asylums are drawn, can, if they

choose to combine for the purpose, exercise some control, though it be indirectly, on the management of these asylums. Secondly, whereas formerly it was customary that the same justices formed year after year a committee for the management of an asylum, now there is no such guarantee of continuity of management. It is but fair to say that any change that is likely to be made, for either of these reasons, will probably not be a change for the better, since the success with which asylums were developed and managed by quarter sessions was conspicuous. Great changes, however, can never occur, for the restraining powers given to the Secretary of State and the Commissioners in Lunacy are so great, that practically all that local authorities can do by way of alteration will be in the direction of cutting down or increasing expenditure, and this only within narrow limits.

In 1890, the year after the Local Government Act came into action, a new Lunacy Act was passed, but before this came into full operation it was repealed by and embodied in the Lunacy (Consolidation) Act, which codified all the intricate provisions of the various Lunacy Acts which were at that time in force.* By this the details of the powers and duties of local authorities and the committees appointed by them are regulated, the action of the Local Government Act, as far as dealing with asylums and their inmates is concerned, being confined to the calling into existence these authorities, and clothing them with power.

The Lunacy Act gives one new power of very great importance to local authorities, the power to make arrangements for the reception of private patients into pauper asylums, under certain regulations, which will be mentioned later on.

Definitions of Terms.—Before describing the duties of a local authority in connection with asylums, it will be convenient to define one or two terms, and also to give a short account of the different ways in which lunacy in all classes is dealt with in England.

For the purposes of this article the expressions "lunatic," or "patient," mean a person of unsound mind, who is under some sort of legal control, and is thus officially recognised.

A "pauper" patient is a person wholly or partly chargeable to a union, county, or borough (341).

* Unless otherwise specified, the figures interpolated in the matter following refer to the sections and sub-sections of the Lunacy (Consolidation) Act, 1890.

A "private" patient means a patient who is not a pauper (341).

An "asylum" means an asylum for lunatics provided by a county borough, or by a union of counties or boroughs (341).

A "hospital" means any hospital, or part of a hospital, or other house or institution (not being an asylum), wherein lunatics are received and supported wholly or partly by voluntary contributions, or by any charitable bequest or gift, or by applying the excess of payments of some patients for or towards the support, provision, or benefit of other patients (341).

A "licensed house" is a house licensed by the Commissioners in Lunacy in the metropolitan district, or by quarter sessions in the provinces, for the reception of patients, the profit on whose maintenance belongs to the proprietor. These institutions are usually called private asylums.

Patients are treated under the following Circumstances.—In *County or Borough Asylums*.—Both private and pauper patients are found herein, and they are under the sole management of the local authority.

In *Hospitals* both private and pauper patients are received, but the latter only by virtue of contracts with local authorities existing on May 1, 1890. No fresh contract is to be made. Local authorities have only to do with the paupers thus received, and have no control whatever over the private patients. They have no direct power over the treatment of these paupers, or the management of the "hospital," being only able, in case of dissatisfaction, to withdraw their patients or complain to the Commissioners in Lunacy. The patients are borne on the books of the local authority.

In *Licensed Houses*.—What has been said as to hospitals applies here, except that fresh contracts can be made between local authorities and the managers of licensed houses. The chief use of such contracts is to temporarily provide accommodation for patients, pending the building or enlargement of an asylum.

In *Workhouses*.—The same applies here, although of course there are no private patients. Power is given to local authorities to send, under contract, selected patients of a chronic and non-dangerous type to workhouses that are certified to be suitable for their reception. All other insane persons in workhouses are under the control of the guardians and Local Government Board, though the Commissioners in Lunacy have the right to inspect.

In *Criminal Asylums* are only patients who are technically private. They are entirely under the control of the Home Office.

In *Single Care*.—These are only private patients. As will be seen later on, local authorities have power to place suitable pauper cases in the care of friends or relatives, but these patients are borne on the books of the asylum, and are thus not technically under single care.

It will thus be seen that the control of local authorities is limited to the dealings with their own asylums, to pauper patients who either are, have been, or are entitled to be, if there is room, in their asylums, and to those private patients whom they may elect to receive into them.

The powers given to local authorities, however, are complete as far as they go. But local authorities have, almost as soon as they receive these powers, to hand them over again to a committee chosen from their own members. This committee is called the visiting committee. A local authority has no choice in the matter; it is bound to choose such a committee as soon as possible. There is left to it a certain originating and controlling power, but the real work is entrusted for the current year to the committee, which is in most matters practically irresponsible to the authority.

The constitution of the committee is subject to the following regulations. It must (169) be elected annually and consist of not less than seven members. If there is more than one asylum belonging to a local authority, one committee may be appointed to manage and control all the asylums, and this committee must appoint a sub-committee for each separate asylum, and may delegate to such sub-committee such powers and duties as it may think fit. Unless some other day is fixed (170) by the standing orders of the local authority, the committee is to be appointed at the November meeting of the authority. Any vacancy is (171) to be filled at once by the authority, but pending this the committee may act. The committee in office shall (172) hold office till the first meeting of their successors, and if default is made in electing their successors, they shall continue in office as if they had been duly re-elected.

Where two or more local authorities have united to provide accommodation, a visiting committee (169) is elected by all the parties concerned, the proportionate number for each having been settled upon in the agreement to unite.

Where a county borough has contributed to the cost of any county asylum, it

may, if it so wish, appoint members of the committee in a proportion agreed upon or, failing such agreement, fixed by the Commissioners under the Local Government Act, or after the latter have ceased to hold office, by arbitration under the Act (169).

Where a borough, not being a county borough, has contributed to the cost of providing any county asylum, and the representatives of the borough on the county council, are not entitled to vote for the appointment by the council of visitors of the asylum, the council of the borough may appoint two persons to be members of the committee.

A visiting committee, having been constituted in one of the methods described above, is subject (175) to certain regulations of an ordinary nature as to place, notice of meetings, election of chairman, method of voting, appointment or discharge of clerk, &c. The committee must (173) examine the accounts of the treasurer and clerk before the month of June in each year, and must report the same to the local authority. A member of the committee must not (174) be pecuniarily interested in any contract or dealing concerning the asylum, though his holding shares in a company which contracts or deals with the committee does not prejudice his position on the committee. The clerk to be appointed may be (176), but need not be, the clerk to the asylum. His name is used either as plaintiff or defendant in any action brought by or against the committee.

The committee has (190) to submit to the authority at their November quarterly meeting a report of the state and condition of the asylum, of its sufficiency to provide the necessary accommodation, and as to its management and the conduct of the officers and servants, and the care of the patients therein.

Turning now to the details of the duties thrown on the local authority or its visiting committee, it is convenient to follow the grouping of these duties adopted by the Local Government Act, section 3, subsection 4, as given at the commencement of this article.

I. Provision of Asylums.—Every local authority is bound to provide accommodation for the pauper lunatics within its jurisdiction (238), and it may also provide accommodation for private patients (241). Provision can be made in various ways—By providing an asylum independently of any other body (242, 1a); by uniting with any other local authorities to provide an asylum for the joint use of the authorities uniting (242, 1b); by uniting with other local authorities for the joint use, as a

district asylum, of any existing asylum; by purchasing any licensed houses (238, 3). It may make temporary accommodation by hiring buildings and land on lease (261, 2); by contracting with the manager of a licensed house (hospitals are forbidden to contract for reception) or the visiting committee of another asylum for the reception of all or any of its lunatics (269, 1), but such contracts may be only for five years, though they are then renewable (269, 3), and they must be sanctioned by the Secretary of State (269, 5) on the representation of the Commissioners in Lunacy (272). The Secretary of State has power to determine a reception contract (269, 5), and then the original duty of the local authority to provide accommodation for the lunatics thus received will be revived (269, 7). It follows on the above that a local authority can contract to receive pauper lunatics from other local authorities, including boroughs, but this is only contingent on there being vacant accommodation in its own asylum (270, 1). For the purposes of providing accommodation, the local authority may borrow money on the security of its fund or revenues from the Public Works Loan Commissioners or any other source (274).

If a local authority neglects to provide accommodation for its lunatics, the Secretary of State may (247), on the report of the Commissioners in Lunacy, require it to do so, and the local authority shall forthwith carry the requisition into effect. A local authority having made up its mind to provide accommodation, whether *proprio motu* or on the requisition of a Secretary of State, has first to consider which of the methods above described it will adopt, but if the Secretary of State has had to interfere, such choice may be taken away from them, the Secretary of State being empowered to direct that a certain method be adopted. Or, supposing that the local authority has itself decided to provide accommodation, it may leave the choice of method to the visiting committee (239). In any case, the carrying out of the details of providing accommodation must be left to the visiting committee, who are (239) authorised to exercise the powers conferred on the local authority by the Lunacy (Consolidation) Act. But, seeing that the Secretary of State may grant or withhold his approval of any contract to place patients in licensed houses or out-county asylums, may grant or withhold his approval of agreements to unite with other local authorities, and may grant or withhold his approval of any plans or contracts for building a new, or enlarging an existing,

asylum, the whole question of the provision of asylum accommodation is controlled by the Secretary of State. Further, section 272 directs that any agreements, plans, contracts, &c., shall be submitted to the Commissioners in Lunacy, who shall report to the Secretary of State. In this way, as a matter of fact, the Commissioners have the real control of all questions concerning the provision of asylum accommodation for pauper lunatics.

Regarding agreements between local authorities to unite for the purpose of providing accommodation, there are certain conditions laid down. All such agreements must state (248)—(a) the number of visitors to be chosen by each contracting party; (b) the proportion in which the expenses of providing the asylum are to be borne by each contracting party, and the basis upon which such proportion is fixed; (c) where the agreement provides for the joint use of an existing asylum, the sum to be paid by each contracting party towards expenses already incurred; and the Act is very specific in its provisions that the visiting committee appointed by united local authorities shall not be subject to unauthorised control. In calculating the proportion of expenses to be incurred by the respective authorities in providing a joint asylum, the basis of such apportionment may (249) be fixed (a) on the extent of the accommodation required by each contracting party; (b) on the population of the respective areas.

Agreements to unite may (250) be varied and altered if the majority of the visitors of each contracting party, and also the Secretary of State, consent, but no variation may go outside the provisions of the Act. As soon as an agreement to unite is carried through and reported to the various contracting parties, the latter must (253) appoint their proper proportion of visitors, who shall act till the election of a visiting committee. A visiting committee duly authorised to provide accommodation, whether in union with local authorities or not, must (254) procure and agree on plans and estimates, and may contract for purchase and so forth, and must also obtain the consent of the Secretary of State. They shall report all these to the local authority or authorities for whom they act, and the plans, &c., shall be subject to the approval of the local authority or authorities, unless the amount to be expended is less than the sum previously fixed by the latter.

If, in case of uniting, the contracting local authorities differ in regard to any plan, contract, &c., the local authority, who does not approve of the proposal,

shall send a statement of its reasons for dissent to the Secretary of State, who may either confirm the proposed plan, or direct any other to be followed as he may think fit, and his decision is final.

Contracts made by a visiting committee with any persons shall (256) be entered in a book, to be kept by their clerk, and when the contract is carried out, the book shall be kept with the records of the local authority, or in case of uniting, with the records of the local authority who contributes the most money. The book may be inspected by any ratepayer, and a copy shall be kept at the asylum. The committee are to require security for the execution of the contract.

The asylums so to be erected need not (262) be within the limit of the jurisdiction of the local authority or authorities.

Local authorities who have been in union in the provision of accommodation may (267), with the consent of a Secretary of State, dissolve the agreement, if a majority of the whole number of visitors so resolve at a meeting summoned upon notice that such a resolution is to be proposed thereat. If the dissolution is carried into effect the real and personal property is to be divided in proportion to the respective contributions towards, or interests in them, or in any other proportions as the committee may, with the consent of the Secretary of State, think fit. It may be noted that while an agreement to unite is settled by the local authority, the agreement to dissolve is settled by the visiting committee. Where two or more local authorities have been in union, a fresh agreement may (244) be made, and supposing that one of the parties desires such a fresh agreement, and the others refuse to make one, the matter in dispute may be referred to the Commissioners under the Local Government Act 1888, and after they have ceased to hold office, to arbitration under that Act.

Enlargement.—Power is given to the local authority to provide increased accommodation by enlargement of the existing asylum (238, '2), the regulation as to raising money, preparing plans and submitting them to the approval of the Commissioners in Lunacy and Secretary of State being identical with those given above. Where the asylum, which is sought to be enlarged, is used as a district asylum, no enlargement may be made without the consent of all the parties to the agreement under which it was provided (257).

Maintenance.—The maintenance of the fabric, furniture, plant, &c., of any asylum is also a duty thrown on a local authority

(238, 1) and this duty has to be executed by the committee of visitors. The committee can order (266) all necessary and ordinary repairs, and may order necessary and proper additions, alterations, and improvements, provided that the cost of these does not exceed four hundred pounds in one year. If any order is given involving a cost of more than one hundred pounds, it must be specially approved by at least three members of the committee, at a meeting summoned upon notice that the proposed expenditure is to be considered thereat. Any alteration, &c., proposed to be made, must previously be approved of by the Commissioners and the Secretary of State.

Management.—The management of an asylum is entirely in the hands of the committee of visitors, subject to the slightest possible control of the local authority. The committee is bound (275) within one year of the erection of an asylum to prepare and submit to a Secretary of State, for his approval, general rules, which, when so approved, shall be printed and observed. These rules may be varied with the consent of the Secretary of State. In addition to these rules, the committee must make regulations setting forth the number and description of officers and servants, and their respective duties and salaries, &c. These regulations, of course, must not be inconsistent with the general rules. The regulations may provide that any number of beds (275) may be reserved for specified cases, and may provide for the exclusion of persons suffering from contagious or infectious disease.

The Committee determines the diet of the patient (275, 6).

The Committee must appoint the following officers:

(a) A chaplain, who shall be in priest's orders, and shall be licensed by the bishop of the diocese. The chaplain must perform divine service every Sunday, Christmas Day, and Good Friday, and on other occasions, and perform other services, as the committee may direct (277). Provision is made for religious ministrations to patients of other creeds (276).

(b) A medical officer, who shall reside in the asylum, and must not be the clerk or treasurer of the asylum.

(c) A superintendent of the asylum, or if there is more than one division, a superintendent of each division, who shall be the resident medical officer, or one of the resident medical officers of the asylum, or of the division of which he is appointed superintendent, unless a Secretary of State authorise the appointment

of some other person than a medical officer to be superintendent.

(d) A clerk.

(e) A treasurer.

(f) Such other officers and servants as they think fit.

The committee may remove any of these officers, and presumedly are responsible for the carrying out of the various duties thrown on their respective officers. The committee may appoint a visiting physician and surgeon.

All salaries, wages and remuneration are fixed by the committee.

The committee (280) may grant pensions, under certain conditions, to officers of the asylum, but seven days' notice must be given of the meeting at which the same is proposed to be granted, and three members of the committee at least must concur in and sign the order granting the pension.

Further, the pension is not to be paid until the grant is confirmed by the local authority. The conditions of a pension are (a) incapacitation by confirmed illness, age or infirmity, or (b) not less than fifteen years' service in the asylum (or asylums, if more than one is maintained by the council) (282), of a person who is not less than fifty years of age. If man and wife are respectively superintendent and matron, and the superintendent is pensioned as above, the committee may likewise pension the matron, if she has twenty years' service; but if she is appointed to a public office or to another asylum at a salary, the pension is decreased by the amount of such salary, or suspended if the salary is larger than the pension. A pension shall not exceed two-thirds of the salary at the date of superannuation and such further sum (if any) as the committee may think fit to grant in respect of the value of lodgings, rations and other allowances enjoyed by the superannuated officer.

The committee bears the burden of financial management almost entirely. Wide limits are set to its discretion, and it is only when it is proposed to pass these, that a reference to the local authority is requisite. The capital cost of erecting or enlarging an asylum, and of the purchase of buildings or land will fall on the local authority itself, who will provide for the repayments of loans and the payment of interest, though the actual amounts so settled by the local authority will appear in the accounts of the committee of visitors.

The committee, however, are specially charged with the financial management of the asylum as a going concern, and it

has, in this view, to carefully separate both revenue and expenditure into two groups. It has to look to the county funds for the expenses incurred by it for ordinary repairs to the fabric and furniture, &c., of the asylum, for improvements, additions and alterations as allowed by s. 266 (see above); for the maintenance of all lunatics chargeable to the county (who are those lunatics, found in the county, who have no ascertainable legal settlement); and for the payment of pensions to superannuated asylum officers (281). On the other hand it has to make a charge on each union or borough in its administrative area of a weekly sum for maintenance of each pauper patient sent to the asylum by such union or borough. This weekly sum (283) has to be fixed by the committee, so that the total amount thus raised will cover the expenses of maintenance, and the salaries of the officers and the attendants of the asylum, and the sum may be altered from time to time.

The primary limit for this sum is fourteen shillings per week, but if the committee finds that this is insufficient for the purposes aforesaid they can (283) apply to the local authority which can fix any greater sum, the order for this being published in a local newspaper. With regard to the charges for patients received into the asylum under agreement with other local authorities, the committee can (283) fix for their maintenance a weekly sum greater than that fixed for the patients of the county so receiving, but it must not be more than fourteen shillings per week, and any excess so created may be paid over to a building and repair fund, at the discretion of the committee.

Where there are two or more asylums in the administrative area of a county (284) the committee may, subject to the control of the local authority, fix a uniform rate for both or all such asylums, and place any excess on the working of one against the loss of working the other.

Where a reception contract exists, the visiting committee sending out its patients under that contract shall (269, 9), defray out of the county fund, such a sum, not exceeding one-fourth of the total weekly charge for such patients, as shall, in their opinion, represent the sum due for accommodation, in exoneration to that extent of the union to which the patients so sent out are chargeable.

Though the local authority is required by section 24 of the Local Government Act 1888, to pay to the guardians of each union a weekly sum of four shillings for

each patient in the asylum who is chargeable to such union, this sum must not be set off by the visiting committee or guardians against the weekly sum payable by the guardians for such patients; the two transactions have to be kept clear, at least as far as the asylum accounts are concerned.

Visitation.—At least two members of the visiting committee of an asylum shall together, once at least in every two months, pay a visit to the asylum (188). Their duties will be to inspect every part of the asylum, to see every patient therein, so as to give every one, as far as possible, full opportunity of complaint, to examine the order and certificate or certificates of each patient admitted since the last visit, and the general books kept in the asylum and they are to enter in the visitors' book any remarks they think proper in regard to the condition and management of the asylum and lunatics therein, and shall sign the book upon every visit.

During the continuance of a contract for the reception of the pauper lunatics of a county borough or borough specified in the fourth schedule of the Lunacy (Consolidation) Act, the council of the borough shall appoint a visiting committee to visit their lunatics (169, 6), and at least two members of this committee shall (189) make such a visit at least once in six months, and see each of their lunatics, reporting the result to the council of the borough. They may take with them, if they think fit, a medical practitioner, who is not an officer of the asylum, and may make an order on the treasurer of the borough for the payment of a sum for his services.

Where a reception contract has been entered into by the visiting committee of an asylum with the subscribers to a hospital, or the manager of a licensed house, the hospital or licensed house may be visited by any members for the time being of the committee of the asylum (269, 10).

Curiously enough there is no provision for the visitation, by members of a visiting committee, of their patients received under contract in a county or borough asylum other than their own, though the guardians of a union can follow and visit their patients, even when confined in an out-county asylum.

Other Dealings with Asylums for Pauper Lunatics.—There are several other duties thrown on the visiting committee, which are not included in the foregoing divisions, and are here described. But it is to be noted that these duties refer more to the lunatics than to the asylums in which they are lodged.

The visiting committee may (26) with the consent of the Local Government Board and the Commissioners in Lunacy, and subject to such regulations as they respectively prescribe, contract with the guardians of any union for the reception into the workhouse of any chronic lunatics, not being dangerous, who are in the asylum and have been selected and certified by the manager of the asylum as proper to be removed to the workhouse. Lunatics thus removed shall, while they remain in the workhouse, continue as patients on the books of the asylum for the purposes of the Act so far as it relates to lunatics removed to asylums—this meaning that the authorities liable for their maintenance shall still receive the 4s. grant. Any two visitors, with the advice in writing of the medical officer, may (55) permit a patient in the asylum to be absent on trial as long as they think fit, and may make weekly allowance—not exceeding the weekly charge for him while in the asylum—and this sum shall be paid for him by the authorities liable for his maintenance, as if he were in the asylum. The visiting committee may (57) hand over a patient to a relative or friend, with the consent of the guardians of the union to which he is chargeable, or if the relative or friend resides outside the area of such union, then with the approbation of a justice having jurisdiction in the place where the relative or friend resides. The committee may allow for the maintenance of the patient any sum equal to or less than the weekly charge in the asylum, and this will have to be paid by the authority liable for his maintenance in the asylum, but such authority is entitled to the grant of 4s. per week, just as if the patient were still in the asylum.

Where such an order has been made, any two visitors may (63) order the patient to be sent back to the asylum. The patient must (202) be visited once in every quarter of the year by the medical officer of the union, and the medical officer must send, within three days, a report to the visiting committee, stating whether, in his opinion, the patient is properly taken care of, and may properly remain out of the asylum.

Any two visitors may (64) order the removal of a patient chargeable to any union in the county, into the county asylum from any other institution in which he may be detained.

Any two visitors may order the removal of a patient from the county asylum into some other institution for lunatics, but the consent of two commissioners in writing is required also, unless it is pro-

posed to remove the patient into an asylum belonging wholly or in part to the visiting committee, or to the county in which the patient may have been adjudged to be settled, or into a hospital or licensed house within such county, or into an institution with which the visiting committee have a subsisting contract. The visitors may (66), on making such an order, require the relieving officer or other officer of the union, county, or borough to which the patient is chargeable, to carry out the removal. No removal shall be made unless (67) the medical officer of the institution from which the patient is to be removed, shall certify as to his fitness and bodily health to be removed.

Any three visitors, or any two visitors with the advice in writing of the medical officer, may (77) order the discharge of any patient, whether he is recovered or not.

When application is made by a relative or friend of a patient, any two visitors may (79) order the discharge of the patient, on an understanding that he shall not be chargeable to any union, county, or borough, and that he will be properly taken care of and prevented from doing injury to himself or others.

When a patient is discharged as above, unless he is to be taken care of by a relative or friend, the committee may (80) give notice to the relieving officer or the clerk of the authority liable for his maintenance, who shall cause the patient to be forthwith removed to the workhouse.

The visiting committee may (258), with the consent of the local authority and the Secretary of State, provide for the burial of patients or officers dying in the asylum, by laying out a burial-ground, or enlarging an existing one of their own, or by contracting with other persons to provide for the burial.

Private Patients.—A local authority can (241) provide accommodation for private patients, either in the same asylum as that in which their pauper patients are confined, or in a separate one. The committee (271) is allowed full liberty to make such terms as to payment and accommodation as they may think fit. The private patients, however, must be received under the same conditions, as to legal enactments, as apply to private patients received into hospitals or licensed houses. The committee have to keep an account (which is to be made up to the end of each year) of the excess of the payments for private patients over the weekly charges for pauper patients, and the surplus, if any, after carrying to the building and repair fund such sum, and providing

for such outgoings and expenses, as the committee consider proper, shall be paid to the treasurer of the council, or to the treasurers of all councils interested, in their proper proportions. The surplus is then to be applied as part of the county or borough fund.

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COUSINS, MARRIAGES OF. (See CONSANGUINITY.)

CRANIOMETRY, Cathetometrical Method of.—The study of pathological skulls and their atypical forms has induced us to abandon the empirical methods used till now, and to construct (1) instruments of precision, (2) precise methods of mensuration.

To determine the situation of any point in the cavity of the skull, it is necessary to know its length, breadth, and height. This is only possible by measuring with the help of a cathetometer, and experience leads me to prefer the optical cathetometer to any other.

The greater the precision of the instrument, the more speedy and, naturally, the more exact its action.

The specimen measured must also be fixed in a scientific way; and with this object we must seek the natural planes and axis of projections of the specimen, and these planes must be in correspondence with the axis of the craniometer.

There are three natural planes of projection in the skull, (1) the median plane—*i.e.*, the plane which contains as many median anatomical points as possible; (2) the second plane is that which passes through both visual axes of Broca, and is perpendicular to the first; (3) the third plane of projection is that which is perpendicular to both the others, and passes through each lateral point.

When in this way, by the use of an exact instrument of fixation (craniofixator), the three axes of the specimen are turned parallel to the axes of the craniometer, the length, breadth, and height can be measured.

To enable the axes of the specimen to be turned parallel to those of the cathetometer, it is necessary that the planes of projections of the specimen be drawn upon it, and this can be done by the aid of an instrument, called a craniograph.

When the specimen is correctly placed, we can determine the angles which the anatomical lines make with the axes of projection. These data are necessary for the representation of the shapes of the different skulls—*i.e.*, to arrive at a definite knowledge as to whether a skull has a receding front, is flat-headed, prognathous, &c.

For the study of asymmetry the exact measuring of length, breadth, and height at corresponding points on both halves of the skull is especially necessary.

The most characteristic condition of asymmetry is when the peripheral measurements of two halves of certain planes are unequal. To determine this it is necessary to find these planes on the skull, and to draw them with an exact delineating instrument, which gives the true natural proportions.

To find in this way the real and exact measures of asymmetry will need the whole sum of exact methods, instruments, and proceedings; for when made in the empirical way the results are erroneous.

Untrammelled by the old dilettante methods, we may discover the laws of construction of the skull, and we learn the truth of the old prophecy of Isaac Newton—"Nature, in life, does nothing un-geometrically."

Only by such an exact proceeding are we enabled to find the limiting line which separates the physiological and typical, from the pathological and atypical series.

MORITZ BENEDIKT.

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CRATOMANIA (*κράτος*, strength, power, &c.; *μανία*, madness). The monomania of power, pre-eminence, and superiority.

CRAZINESS (Mid. E. *crazen*, to crack; Sw. *krasa*, to crackle, to break). A term applied to a form of chronic insanity or dementia in which the mind is as if were broken; it is an intermediate stage between chronic mania and absolute fatuity. (Also Good's synonym for Insanity or Echronia.)

CREDULITAS or **CREDULITY** (*credulitas*, easiness of belief). One of the varieties of *Moria imbecilis*, according to Good, consisting in weakness and undue pliancy of the judgment, with a facility for being duped.

CREEPS (A.-S. *creopan*, to crawl). A synonym of what is popularly known as the Fidgets (*q.v.*)

CRETERISMUS. Another name for Cretinism.

CRETIN (etymology doubtful; some suggest that it is derived from L. *creta*, chalk, in allusion to the chalky appearance of the complexion; or from G.

Kreidling, from *Kreide*, chalk; some believe it to be a corruption of *L. christianus*, a Christian, because Cretins generally have a happy disposition; or from *cretina*, stupid or silly.) Cretins are by some writers called Capots, Caffos, or Cagots, the two former being probably corruptions of the latter term, but this is a misapplication, as Cagots and Cretins are in all respects totally different; in Austria they are called Trotteln, Gacken; in Germany, Kretins and Kreidlings; in Italy, Gavas, Totolas, Cristiani; and in South America, Bovos, Tontos, beside many other local applications; in old Latin books they are called Christiani. One who suffers from cretinism (*q.v.*).

CRETINISM.—Under this term there are included even at the present time several conditions of degeneration or non-development which owe their existence to different pathological causes. Gradually, however, especially after the investigation of diseases of a cognate kind, it is becoming more and more the rule to restrict the term cretinism, so that it should apply only to that one particular class of idiocy in which there is some disease of, or change in, the thyroid gland. This article therefore will be constructed on the basis that the interference with the function of the thyroid gland produces a condition which may be called cretinism. The change in the thyroid gland may be in two directions, first, it may be atrophied; secondly, it may be hypertrophied, and the seat of a new growth of tissue until the function of the gland is impaired; while further, if the interference with its function be absolute the individual dies. Now the cretinism which is produced by this loss of function of the thyroid gland shows itself, first, congenitally; secondly, as a disease commencing in early childhood.

1. Congenital Cretinism.—The appearance of cretinism during intra-uterine life, fortunately of rare occurrence, in all cases hitherto recorded, is marked by complete absence of the thyroid gland, either from want of development or from changes that have resulted in its atrophy. As a rule, birth is not survived and the body presents very constant appearances, namely, a curious stunted, broadened appearance, the skin appears thickened or thrown into folds, the fatty tissue well developed, and the so-called fatty tumours are present on each side in the supra-clavicular region. The bones of the cranium are greatly thickened while those of the face are imperfectly developed, thus the skull is broad and short, the

sutures open, and the basi-sphenoid junction sometimes prematurely ossified. The bones of the limbs are short, the epiphyseal ends greatly swollen, but none of the epiphyses ossified, these contrasting very much with the ossified shafts. All the other bones—*e.g.*, ribs, pelvis, &c.—present the same stunted, broad appearance. Microscopic examination of the bones has shown nothing analogous to the condition with which this congenital cretinism was formerly confused, namely, rickets. The internal organs appear to be normal. The muscular tissue is pale and appears to be cedematous. Microscopic examination of the connective tissue has simply shown overgrowth for the most part of fibrous tissue, and examination of the cartilages has shown a mucoid condition of the ground substance.

To sum up, the condition is like that of myxœdema coupled with incomplete development of the skeleton and with degenerative changes in the connective tissues.

2. Ante-natal and subsequent slow Development of Cretinism.—Between the condition just described and the cases in which the infant appears perfectly healthy, but develops cretinism in early childhood, there are a certain number of cases in which the disease appears to commence from just before birth, and to develop very slowly. These cases we will now consider, since they form a kind of intermediate class distinct from the two before mentioned.

Unlike the truly congenital cretinism the patients in this case are of course born alive and subsequently develop more or less at birth. The infant shows no, or very slight, signs of intelligence, but the physical signs are less obvious. According to some, the majority at birth have a goitre usually of about an inch in diameter; the body is large, with disproportionate head and hands, and what is more important still in connection with the similarity to myxœdema, in many cases the subcutaneous tissues appear œdematous; occasionally according to the severity of the case, there is also non-development of the facial bones, a flattened nose, giving a stupid appearance, and a large and thick tongue. The neck is short and thick. It is obvious that under these circumstances we have the same condition as that described above, only much less severe; the further history of these cases shows that the destruction of the thyroid gland continues, and the symptoms develop into the worst form of cretinism about to be described.

During the evolution of the cretinism

it is noticed usually that at puberty there is a change in the condition, usually for the better, but the degeneration, even if rendered stationary at this epoch continues to progress after some time.

3. Development of Cretinism in early Childhood.—In this country most commonly cretinism (called "sporadic cretinism") shows itself as a disease attacking the individual usually about the fifth year. Under such circumstances the infant at birth appears to be perfectly normal, but about the time mentioned it begins to exhibit the degeneration about to be described.

The child from being bright and normal becomes gradually less and less intelligent, and at the same time the physical appearances which have been summed up in the conditions before mentioned begin to assert themselves. The child does not increase in height, the limbs similarly do not lengthen, but remain short and thick. The trunk is broad and thick, there being also well marked lordosis so that the abdomen is prominent. In like manner the neck is shortened, the skull broad, the nose retroussé, the lips thick, and the teeth very imperfectly developed. The speech from being clear becomes thick, the voice is rough and at times stridulous, the physiognomy is placid to stupidity, the skin is coarse, the hair becomes scanty and thin. There is well-marked anæmia; the subcutaneous tissues have a peculiar kind of spongy or waxy feel, as if there were, so to speak, solid œdema occupying the connective fibres of the tissues.

This condition thus produced reaches its height usually by the end of fourteen or fifteen years, so that by the twentieth or twenty-first year it has attained complete development and thenceforward remains perfectly stationary until death. Hence, at the age of thirty the physical appearance presented is that of a young child, and the intellectual condition similarly does not advance beyond that of childhood.

As a rule the thyroid gland in this case appears to undergo steady atrophy—*i.e.*, from about the beginning of the third year; in certain cases, however, it has been observed to show hypertrophic conditions and subsequently to develop into a very large goitre.

In addition to the mental deficiencies noted, the lower nerve centres are also inactive, and as a result the movements, even of organic life, are very slow and feebly performed.

At this point it will be most convenient to review this condition in connection

with the disease called myxœdema. It will be seen that in the cretinism of early life, just as in myxœdema, the change in the thyroid gland leads to the development of atrophic changes in the connective tissues; that in addition the latter appear œdematous and swollen, and that there is an undue development here and there of fat. In both diseases the skin loses its function and becomes dry and harsh; the cutaneous appendages similarly become atrophied—*e.g.*, the hair—and there is also set up in both cases notable deficiency in hæmopoiesis, so that the patient presents a remarkably anæmic appearance. On account of this relationship it has been proposed by Bourneville to speak of sporadic cretinism as idiocy, with pachydermic cachexia or cretinoid idiocy.

This now introduces us to cretinism as it is seen in a much greater state of development abroad. In Switzerland and those mountainous districts of Europe where this disease is most common, the idiots gathered together under the term cretins apparently fall under several classes of idiocy. Thus it has been the custom to speak of cretins with goître, cretins without goître, cretins with myxœdematous symptoms, and cretins without goître or distinct myxœdematous appearance, and all these variations have been difficult problems to the pathologist.

By excluding all cases in which the appearance of idiocy is not accompanied by any noteworthy change in the skin or connective tissues we obtain a considerable delimitation of the condition which we ought to call cretinism, for by adopting such a plan of differentiation we necessarily leave out all cases due to direct injury or disease of the central nervous system, and which are included in the conditions classed by various writers under different headings, such as congenital idiocy; idiocy following encephalitis; microcephaly; hydrocephalous idiocy; idiocy coupled with porencephaly, &c., all being cases where we have destructive lesions or non-development of the central nervous system, especially of the cerebral hemispheres, and in which therefore we have a simple and direct destruction of the intellectual mechanism. Although such conditions may be naturally accompanied by want of development in the parts of the body which may happen to be paralysed, &c., still there is no direct or certainly no general change in the connective tissues throughout the whole system, and secondarily in the nervous system such as furnishes the basis of the present classification.

4. The Adult Condition of Cretinism slowly developed from the Time of Birth.—The following is a description of cretinism in which the disease has been progressive since birth, but not so severely as to cause death before the individuals affected have arrived at the age of thirty or forty years.

The skeleton is short. The cranium is broad, brachycephalic, thickened, and frequently the sutures are occupied by Wormian bones. The front of the cranium is flattened, frequently depressed and sloping backwards. The nose similarly is broadened, especially about the alæ, which latter pass directly into the naso-labial fold. The eyes are widely separated, and the bones of the face are generally slightly developed, so that the usual prominences are but little marked.

The skeleton of the trunk is frequently deformed, the vertebral column may present angular curves, more usually kyphosis; and occasionally there is a lateral curvature with rotation of vertebræ. The skin is rough and insensitive, frequently of an earthy or brown tint, and it is only in the so-called myxœdematous cretins that it is pale and œdematous looking. The hair is often very thick and crinkly as in previous conditions mentioned, the teeth are very defective, and frequently, after the milk teeth have been shed, no permanent teeth appear. The mouth is very large, lips thick, as in the other conditions. The tongue is also thickened, and occasionally is protruded; the abdomen is usually more or less distended; the lower limbs are frequently emaciated, and the muscles exhibit want of tone; the hands and feet are broad and thick, the fingers also, and the nails coarse and hypertrophied.

The physiological activity of the different functions of the body is of course similarly impaired, respiration is slow, the action of the heart is also slow, and the temperature of the body is lowered. Digestion is usually very irregular owing to the rough food, and the quantities and intermittent occasions on which it is taken. Similarly the functions of micturition and defæcation are irregular, menstruation scanty or absent, and no sexual activity save in mild cases.

Mental Capacity.—This varies entirely with the condition of the body as a whole; there being no truly selective influence of the condition on the action of the brain, the central nervous system fails simply because it is the most highly complex of the viscera.

Intellect.—If the cretinism be moderate, these patients understand things which

are said to them, and they have occasionally been educated so as to fulfil many of the necessities of social life.

Emotions.—Usually perfectly placid and unmoved, they are nevertheless capable of evincing the various emotions of fear, affection, &c. &c., in greater or less degree according to the severity of the condition.

Volition.—Just as in the myxœdematous condition, all purposive acts are rendered very difficult of accomplishment, and not only is there the initial difficulty of commencing, but as a rule all movements are carried out slowly as well as imperfectly.

Speech is very defective in articulation, and gesture is often resorted to for communication of ideas.

Sight is normal except in very marked cases, and even the colour sense is present.

Hearing, on the contrary, is usually very defective, indeed according to the Sardinian Report on Cretinism only about a third of all cretins have perfect hearing.

Smell appears to be very deficient, the cretin only appreciating extremes, agreeable or disagreeable, the tactile sense, of course, and the muscular sense are both similarly wanting.

Pathology.—The pathology of cretinism has been a matter of great difficulty as well as of interest to all workers in this subject. Cretinism was until recently attributed to many causes, *e.g.*, the defective development of the brain caused by the diminution in the supply of blood owing to pressure of the goitre and by congenital defective development; chemical constitution of the drinking water; imperfect sanitation in the direction of deficiency of oxygen in dwellings; and want of light in shut-in mountain-valleys. The fact of all these things differing so much one from another, shows that no one of them is capable of producing the changes in the thyroid gland which we shall examine directly in further detail, and that probably the ultimate condition is to be looked for in the accidental combination of insanitary conditions. In connection with this point however it is necessary to speak of hereditary cretinism.

There is no doubt that in many cases, especially so-called sporadic cretinism, the affection is liable to show itself in members of the same family and in the same way. There is no doubt that when an individual has a goitre that affection of the thyroid either in the direction of goitre or atrophy and consequent cretinism is likely to develop in the offspring. Consequently, like many

other conditions in which a gland, the function of which is in relation to the general chemical changes of the tissues, is affected, preliminary defects in its development are extremely likely to terminate in extensive destructive disease. In this way doubtless the heredity of the affection is brought about. Unfortunately, the pathological anatomy of cretinism is yet wanting in anything like completeness. We yet require a distinct investigation into the condition, more especially of the connective tissues, particularly in accordance with the modern views concerning this subject.

A few post-mortems have been collected by various authors, and they have for the most part shown that besides the changes above-mentioned the central nervous system exhibits marked deficiencies in development; the convolutions indifferently marked, and the vessels small in proportion to the want of development of the nerve tissue.

With these unfortunately scanty facts before us, coupled with the clinical appearances above given, we are now in a position to discuss the true pathology of cretinism a little more closely from the standpoint of experimental investigation. It has been shown that in different classes of animals the function of the thyroid gland possesses varying importance, that in the rodent this is relatively slight, whereas in the carnivorous animal it is extremely high. In omnivorous animals it is intermediate in the position it occupies. In all cases the gland seems to have to do principally with the chemical changes of the connective tissues, and when its function is interfered with either by inflammation leading to atrophy, or by pseudo-hypertrophy of its tissue leading to the formation of a goitre, there ensues a definite chain of events which has received different names, and which the writer believes to owe their varying character simply to the rapidity of the destruction of the function of the gland. Thus he has shown experimentally that provided the gland be removed in monkeys with all aseptic precautions, the myxœdematous condition is produced, other things being equal; but that if special care be taken to ameliorate the condition (*see Treatment*) the myxœdematous stage is survived, and there ensues an advanced condition of hebetude in which the atrophic condition of the tissues above noted occurs, and the animal ultimately dies, presenting all the appearances of advanced cretinism. These observations tend to connect closely to-

gether the diseases hitherto described as myxœdema, cachexia, struma-priva, and cretinism. (For an extended review of these conditions *see* "Report on Myxœdema," Clinical Society.)

Social Position.—Cretins are always classed as idiots, and treated as such. Cases of sporadic cretinism find their way ultimately into lunatic asylums, and are incapable of mental improvement apart from obedience to a certain extent to rules and discipline, and attending to themselves. A considerable amount of very beneficial work has been done abroad in completing the mental development of cretins, in whom the disease has commenced very slowly, and in whom the destruction of the thyroid gland with its consequent effects has been imperfect. In this respect however the seclusion of the individual should be carried out, including removal from home. Responsibility cannot be imputed to any cretins, although education may have aided mental development.

Treatment.—No treatment of cretinism has ever been attempted from the point of view suggested by the pathology (*vide supra*) for the reason that until recently the latter has been so extremely obscure. It is obvious however that where the idiotic condition can be shown to be originated by loss of function of the thyroid body, an attempt should be made to restore that function. The only way in which this would be possible would be by the method originally suggested by Prof. Schiff, viz., transplantation of the thyroid gland. The possibility of this has lately been shown to be more hopeful than might have been expected, by the researches of Eisselsberg, and the operation has actually been performed upon individuals, the subjects of cachexia struma-priva, with promising results in the hands of Bircher, Kocher, &c.

As to the further development however of this treatment, time alone will decide.

Where the myxœdematous symptoms are extremely marked, a good deal can be done in the direction of palliation. The discomfort produced by the symptoms is best attacked by, in the first place, keeping the patients very warm in a hot atmosphere and thoroughly clothed, by the employment of hot air or Turkish baths; and secondly, where the action of the skin is imperfect, by the internal administration of pilocarpine as such, or by giving the tincture of jaborandi. Accidents and complications which arise in the course of the affection are simply such as occur to ordinary individuals, and the

means of meeting them requires no special description.

VICTOR HORSLEY.

[References.—Report of the French Commission appointed by the Minister of Agriculture and Goitre, published in 1873; *Études sur le Goitre et le Crétinisme*, par M. Parchappe; Documents mis en ordre et annotés, par M. Lunier. Paris. 1874.]

CRETOMANIA (*cretin*; *mania*, madness). The form of insanity sometimes associated with the cretinoid state. Mania with lust and satyriasis.

CRIB-BED. (See MECHANICAL RESTRAINT.)

CRIMINAL ANTHROPOLOGY (**Criminal Psychology, Criminal Biology, Criminology, etc.**).—Criminal anthropology is the name (first used by Lombroso and others of the so-called Italian school) now generally given to that branch of morbid psychology which is concerned with the study of such physical and psychological peculiarities as may be found in criminals. Although to some extent related to general anthropology, it is not a branch of that science.

Classification of Criminals.—Some attempts have been made to classify criminals on a pathological basis. Thus Prof. Benedikt divides them into (1) *homo criminalis* (with normal characteristics), (2) *homo criminalis neurasthenicus* (professional criminal), (3) *homo criminalis e morbo aut ex intoxicatione*, (4) *homo criminalis degeneratus*. It is safer, however, at present to avoid any attempt at pathological classification, and to be satisfied with a simpler and, as it may be termed, clinical classification; the best is perhaps that of Prof. Enrico Ferri. The classification here followed corresponds very closely to Ferri's: (1) the criminal by passion, (2) the occasional criminal, (3) the habitual or professional criminal, (4) the instinctive criminal, (5) the insane criminal.

(1) *The Criminal by Passion.*—Crimes of passion are usually committed by persons whose lives have previously been free from crime; they are not generally prompted by anti-social motives; an assault by a man on another who has insulted his wife, or by a father on the seducer of his daughter, is generally a crime by passion. Careful physical and psychological examination as a rule fails to show any striking evidence of abnormality or degeneration, nor is the heredity bad. These persons are usually distinguished from all other classes of criminals, not only by their previously good life, but by their genuine and keen remorse.

(2) *The Occasional Criminal.*—In the occasional criminal there is an element of innate criminality which leads him to fall

an easy prey when the occasion of crime presents itself. Opportunity plays the chief part in his criminality, but, as not all persons succumb to opportunity, we have to recognise the presence of an original weakness of organisation. The occasional criminal might, therefore, be regarded as a less strongly marked variety of the instinctive criminal, presenting abnormal characters, but in less abundance. Bad heredity is common in the members of this class, which is not, however, of very homogeneous character.

(3) *The Habitual or Professional Criminal.*—In this class there are at least two subdivisions: a weaker and more degenerate division, who commit crime helplessly, and professional criminals in the narrower sense of the word. Professional criminals constitute the aristocracy of criminality. They adopt deliberately a career of crime, and embark in difficult enterprises often requiring considerable skill. They do not usually show any marked physical or psychological abnormality.

(4) *The Instinctive Criminal* (congenital criminal, *criminel-né, delinquente-nato*).—Instinctive criminality has by Lombroso and some other writers been identified with moral insanity (see MORAL INSANITY). Instinctive criminals form but a small percentage of the prison population, but they are the most serious proportion. They reveal criminality in its most emphatic shape; and, being related on the one side to the merely occasional criminal and on the other to the insane criminal, they deserve and have obtained very careful and minute study. They often present in well-marked condition those signs of abnormality, degeneration, or disease, physical and psychological, which in a less well-marked form are found in the classes already mentioned, and it is necessary, therefore, to enumerate briefly the chief of these characteristics. They may usually be divided into (a) atavistic, (b) atypical, and (c) morbid; but it will be more simple and convenient to adopt a rough clinical method of enumeration.

(5) *The Insane Criminal.*—The instinctive criminal passes gradually on one side into the insane criminal. There is no clear line of demarcation, although, as is well known, in the present state of the law and of popular feeling, the question of the sanity or insanity of a criminal is one of considerable importance. (See CRIMINAL RESPONSIBILITY, and CRIMINAL CASES.)

Cranium and Cerebrum, &c.—Much discussion on the matter seems to lead to the conclusion that the heads of criminals differ little from the average, but that

both small and large heads are found with unusual frequency, middle-sized heads being deficient. Thieves more frequently have small heads, murderers large heads. The cephalic indices are not infrequently an exaggeration of those of the race to which the criminal belongs. Marked abnormality or irregularity in the shape of the head is found with great frequency. According to some observers, the orbital capacity is often unusually great, the frontal crest remarkably prominent, and the median occipital fossa often present. Not much is known with certainty of the cerebral characteristics of criminals; there is, however, no doubt that defective conditions often occur. Several investigators have noted the frequency with which the signs of old meningitis are found; and various pathological features, such as pigmentation, cysts, degenerating capillaries, are not infrequently seen.

Face.—The average weight of lower jaw has been found to be considerably above the average (Manouvrier), and this frequently imparts a heavy and voluminous aspect to the lower part of the face. Prominence of the zygoma is common. Prominent, large, and outstanding ears (*ad ansa*) are very frequently found; according to Ottolenghi, in 39 per cent. criminals as against 20 per cent. normal persons. Abnormalities of the ear are also often noted. Wrinkles are precocious and well marked. The beard is usually scanty, but the hair on head abundant; it has been frequently asserted that the proportion of fair-haired is less than among the ordinary population.

Body and Viscera.—Muscular anomalies are common (Guerra). "The greatest physical deficiency," says Dr. H. Wey, "is found in the respiratory apparatus. Pigeon-breasts, imperfectly developed chests, and stooping shoulders abound." Heart disease is very common. Valvular insufficiency and cardiac atrophy have been found very prevalent; also endarteritis and atheroma, even among the young. Ottolenghi finds that, "on the whole, anomalies of the genital organs have in sexual offenders no small diagnostic importance."

Heredity.—This is usually of great importance. Of 4550 inmates of the Elmira Reformatory, 539, or 12.8 per cent., have been of insane or epileptic heredity. Of 233 prisoners at Auburn, New York, 23.03 per cent. were clearly of neurotic (insane, epileptic, &c.) origin; in reality, many more. Virgilio found that 195 out of 266 criminals were affected by diseases that are usually hereditary. Rossi found to 71 criminals 5 insane parents, 6 insane

brothers and sisters, and 14 cases of insanity among more distant relatives. Koch found morbid inheritance in 46 per cent. of criminals. Marro, who has examined the matter very carefully, found the proportion 77 per cent., and by taking into consideration a large range of abnormal characters in the parents, the proportion of criminals with bad heredity rose to 90 per cent. He found that an unusually large proportion of the parents had died from cerebro-spinal diseases and from phthisis. Laurent finds hysteria very common among the mothers of criminals. Sichard, examining nearly 4000 German criminals in the prison of which he is director, found an insane, epileptic, suicidal, and alcoholic heredity in 36.8 per cent. incendiaries, 32.2 per cent. thieves, 28.7 per cent. sexual offenders, 23.6 per cent. sharpers. Penta found among the parents of 184 criminals only 4 to 5 per cent. who were quite healthy.

Marro has found that the proportion of criminals whose parents were very young or very old at conception is decidedly greater than of ordinary persons. Alcoholism in either of the parents is frequently associated with criminality in the child. Carefully drawn statistics of the 4550 criminals who have passed through Elmira, New York, show drunkenness clearly existing in parent in 38.4 per cent., and probably in 11.4 per cent. more. Out of 71 criminals whose ancestry Rossi was able to trace, in 20 the father was a drunkard, in 11 the mother. Marro found that on an average 41 per cent. of the criminals he examined had a drunken parent, as against 16 per cent. for normal persons.

Motor and Sensory Abnormalities.—Left-handedness is decidedly common among criminals. Examining 81 normal persons, Marro found 70 right-handed, 7 left-handed, and 4 ambidextrous. Examining 190 working-men he found only 6 left-handed. Altogether the proportion of normal left-handed and ambidextrous persons, was 6.2 per cent. Among criminals, on the other hand, with the single exception of highwaymen, the proportion of left-handed and ambidextrous persons was in every case higher: among 40 assassins, 17.5 per cent.; among 7 incendiaries, 28.5 per cent.; among 44 burglars, 18.1 per cent. This corresponds with a greater sensory obtuseness which has also been observed on the right side among criminals.

The tendon-reflexes of the knee are very frequently absent, especially among thieves (Lombroso), or exaggerated, especially among sexual offenders (among

40 per cent. of the latter according to Marro). Anæsthesia and analgesia in varying degrees are extremely common in criminals. Connected with insensibility is the disvulnerability (or rapid recovery from wounds), first noted by Benedikt, which is frequently observed in criminals. Lombroso found the general sensibility decreased in 38 out of 66. Working with Du Bois-Reymond's electrical apparatus, in conjunction with Marro, he found the sensibility of the criminals much inferior to that of the normal persons examined. Swindlers possessed much greater sensibility than murderers and thieves. Marro found sensibility, measured by an æsthesiometer, most obtuse in murderers and incendiaries. Similar results were obtained by Ramlot, in reference to tactile sensibility; he examined 103 criminals and 27 normal persons, and found obtusity in 44 per cent. of the former, and in only 29 per cent. of the latter. Bielakoff found the eyesight of criminals inferior to the normal, but Bono, Ottolenghi and other recent observers have found it decidedly superior. Ottolenghi examined 100 criminals with Snellen's types in the open air, using various precautions to ensure uniformity and accuracy. The results were—

Visus (average) for	82 thieves = 1.8
" "	18 homicides = 2.2
" "	100 criminals = 2.0

In one of the homicides sight was very keen ($V=3$). He examined 15 warders between the ages of 27 and 45, under the same conditions and found $V=1.5$. The hearing of criminals is relatively obtuse, and they are prone to disease of the ear. Thus Dr. Gradenigo, at the request of Lombroso, undertook a series of researches into the matter, in 110 instinctive and occasional criminals. Of the 82 criminal men he examined, 55 (67.3 per cent.) proved to be inferior to the normal. Of these 82, there were 40 who were instinctive criminals, and of these 29 (72.5 per cent.) had defective hearing. Of the 28 women, 15 (53.5 per cent.) possessed hearing inferior to the normal. Four of the women, however, possessed hearing much superior to the normal average. Gradenigo found that the defective hearing was due in the great majority of cases to inflammatory affections of the middle and internal ear. He found no constant relation between defective hearing and obtusity of touch, taste, and smell, frequently found among criminals. Ottolenghi finds that the olfactory sense is less developed in criminals than in normal persons. Ottolenghi has also made careful experiments, from which it appears that the sense of taste is more developed in the normal man than

in the criminal, and more developed in the occasional criminal than in the instinctive criminal. He found gustatory obtuseness in 38.3 per cent. of the instinctive criminals, in 25 per cent. of the lower class men examined, and in 14 per cent. of the professional men. Criminal women also showed a larger proportion of gustatory obtuseness than normal women. Tobacco is used by criminals from a very early age. Sexual precocity, showing itself both in natural and unnatural forms, is excessive.

Moral Insensibility.—Despine, in his *Psychologie Naturelle* (1868), studied this question on the largest scale in order to obtain exact results. "I addressed myself for this purpose, to the collection of the *Gazette des Tribunaux*, going back to 1825, and I soon acquired certainty that this psychological peculiarity is an invariable rule among these criminals. . . . I acquired the certainty that those who premeditate and commit crime in cold blood never experience moral remorse. I found also that those who manifest acute sorrow and real remorse after a criminal act, have committed that act either under the influence of a violent passion which has momentarily stifled the moral sense, or by accident, without intention." He concludes that the two great psychological conditions for crime are moral insensibility and perversity, with two accessory moral anomalies, imprudence and lack of foresight.

Out of more than 400 murderers Bruce Thomson had known, only 3 expressed remorse. Of the 4550 criminals who have passed through Elmira, 34.1 showed on admission positively no susceptibility to moral impressions; only 23.1 per cent. were "ordinarily susceptible." Dr. Salotto, in his recent study of 130 women condemned for premeditated assassination or complicity in such assassination, was only able to recognise genuine penitence in 6. He is careful to point out that precise statistics on this point are of no great value, unless they are associated with a very intimate knowledge of individual criminals; the assumed penitence is seldom real, and the real penitence is not obtrusive.

Intelligence.—The two most characteristic features in the intelligence of the average criminal are at first sight inconsistent. On the one hand he is stupid, inexact, lacking in forethought, astoundingly imprudent. On the other hand he is cunning, hypocritical, delighting in falsehood, even for its own sake, abounding in ruses. These characteristics are fully illustrated in the numerous anecdotal

books which have been written concerning crime and criminals.

Several attempts have been made to attain accurate figures as to the relative intelligence of criminals, but there must be a considerable element of guess-work in such calculations. Dr. Marro, a reliable observer, detected a notable defect of intelligence in 21 cases out of 500. He found that incendiaries, and then murderers, yielded the largest proportion of individuals with defective intelligence; then came vagabonds, sexual offenders, those convicted of assault, highwaymen, and those convicted of simple theft. The fraudulent class, as well as the pickpockets and burglars, showed no instances of defective intelligence. That is to say, that criminals against the person show a much lower level of intelligence than criminals against property.

The stupidity and the cunning of the criminal are in reality closely related, as in savages and the lower animals. Those who are most familiar with criminals constantly compare them to animals—the ostrich, the cat, the fox. It is scarcely necessary to add that exceptional ability may be associated with criminality.

Emotional Characteristics.—The vanity of criminals is very marked. Very frequently they are open to sentiment or sentimentality. Religion, or superstition, is by no means uncommon among them, while freethinking is rare. They are very lazy and incapable of prolonged and sustained exertion; constitutional laziness is, in fact, one of the chief organic bases of crime. At the same time criminals are capable of moments of violent activity. They crave for all forms of stimulus to lift them out of their habitual inertia. The love of alcohol is everywhere strongly marked among criminals, though it is not universal. The love of gambling is even more widely spread. This craving for excitement finds its chief satisfaction in the love of orgy now almost confined, at all events in its extreme forms, to the criminal and his intimate ally, the prostitute. Significant of the emotional instability of criminals are their spontaneous outbursts of excitement. In Germany these periodic explosions (known as *Zuchthaus-Knall*) have been described by Delbrück and Krafft-Ebing. In Italy they have been noted by Lombroso, especially in very hot weather and at such times as epileptic attacks are most frequent. In England they appear to be rare in men, but, on the other hand, common in women, who have, in prison language, “broken out.” This wild fit of maniacal violence which from time to time

seizes on the women confined in prisons, might almost be regarded as an exaggerated or vicarious form of orgy. There is greater likelihood of the occurrence of these “breakings-out” at dates corresponding with the menstrual period (Nicolson).

Diagnosis.—The methods of examining cases vary considerably in extent and method in the hands of different investigators. The two following cases present average examples of the methods followed in Italy, where criminal anthropology is at present most actively pursued.

(1) D., age 18, of Turin, smith. A woman's head tattooed on his right arm, and the beginning of a name (record of love); in epigastric region a transfixed heart (to recall a revenge to be accomplished). A scar in left frontal region; cannot, or will not, say how he got it, but has ever since suffered from giddiness.

Complexion very pale; vaso-motor reaction more marked on the left; pupils react slowly; facial asymmetry; ears prominent. Hair sparse, dry, and very dark. Fingers very long and slender. Has tremors; there is hypertrophy of heart. Head acrocephalic, flattened at the nape.

Cranial measurements: longitudinal diameter, 177; transverse, 151; longitudinal curve, 360; transverse, 300; maximum circumference, 530. Dynamometer: both hands, 34; right, 14; left, 17. Æsthesiometer: right, 1.8; left, 1.2; tongue, 0.4. Topographic sensibility erroneous in both hands. General electrical sensibility: right, 49; left, 43. Sensibility to pain: right, 20; left, 27. (Normal person gives: general, 53; to pain, 38.) Temperature in axilla, 37° 5 C. Slow to distinguish colours.

Vicious from a child; very precocious sexual habits.

At eight years commenced at school to steal certificates of merit in order to get a prize. At fourteen, at the invitation of a friend who was a thief, robbed a jeweller; from that time committed numerous robberies whenever he could. Willingly gets drunk, but his chief passion is travel.

In politics he would prefer a Republic, but without police or prisons; but confesses that in winter, when work is scarce, “it is not bad in prison.”

His parents affirm they are honest, but not the other relations. Mother suffers from palpitation of the heart. One sister is leading a bad life; another is very religious. A maternal cousin was in prison. (V. Rossi.)

(2) Certa Fil, condemned to four years' imprisonment for thefts of fur cloaks and

similar articles. Age 56. Circumference of head, 54.5. Right eye placed rather low. Tendon reflexes normal.

From a child she has suffered from illness caused by fear, owing to a fall into the water. From fifteen to thirty suffered from frequent headaches. Eight years ago, about three years before thefts, had typhoid fever, and also contracted syphilis from her husband. She had frequent and severe pain in the temples. No children. Her mother suffered from rheumatoid arthritis, and this caused melancholy, which is said to have contributed to her death. She had fourteen children, mostly twins, who all died at birth except one, who is very extravagant and dissolute.

Sensibility.—With æsthesiometer: on the hand, 3 mm. on the left, 2 mm. on right; head, 16 mm.; tongue, 9 mm. With faradic current: general sensibility, 70 mm.; on the hands, while a student has pain on palm at 55, on dorsum at 60, she has pain on right palm 50, left at 50; right dorsum at 60, left at 55. Strength with dynamometer slight: right, 28 cg.; left, 38 cg.; with both hands, 58 cg.

Psychological Examination.—Married at age of nineteen, she lived happily with husband for twenty years—i.e., until age of thirty-nine. Then the husband began to lead a dissolute life, and infected his wife with syphilis. Driven wild by her husband's continual ill-treatment, she began to steal furs and other articles from a neighbouring shop. She was always afraid of being discovered, and experienced remorse which took away sleep and appetite, and she planned methods for restoring the things without being discovered.

During her four years of imprisonment she did not learn the *gergo* or prisoner's slang, would not associate with her companions, and was always crying. She blushed slightly when questioned concerning her periods.

Diagnosis.—This woman, under the stress of illnesses and need of money, was drawn to theft; she was not, however, predisposed to crime, and (excepting the dissolute conduct of one brother) there were no marked signs of hereditary degeneration. When we add that she was never given to orgies, that she did not care to associate with her criminal companions, that she did not learn the *gergo*, that she blushed when spoken to without due consideration, we must conclude that she is an occasional criminal. If she had been in a comfortable social condition, and in good relation with her husband, she would probably not have become a delinquent. (G. Abadi.)

It need scarcely be said that criminal anthropology cannot be used to discover the author of a crime. But the careful physical and psychological examination of the criminal is frequently of great value in determining the degree of risk to which society is exposed during his freedom. It also enables us to speak with a certain amount of assurance concerning the probability of the criminal's reformation, and concerning the methods best calculated to attain that end. HAVELOCK ELLIS.

[*Literature.*—Lombroso's *L'Uomo Delinquente* (Turin) is the great storehouse of facts concerning the varieties of the criminal (translated into French as *L'Homme Criminel*, Paris, Alcan; and into German as *Der Verbrecher*, Hamburg, Richter). Marro's *I Caratteri dei Delinquenti* (Turin) is a very careful and reliable study founded on personal investigations. Corre's *Les Criminels* (Paris, Doin) contains much useful information; and Laurent's *Les Habitués des Prisons* is very interesting. *The Criminal*, a volume by the present writer in the *Contemporary Science Series* (London, Scott), summarises the present state of our knowledge, and is as yet the only English work. Lacassagne's *Archives de l'Anthropologie Criminelle* and Lombroso's *Archivio di Psichiatria* are the best journals devoted to this subject.]

CRIMINAL CASES, Summary of Practice as to PLEA of INSANITY

in.—(1) "Where in any indictment or information any act or omission is charged against any person as an offence, and it is given in evidence on the trial of such person for that offence that he was insane, so as not to be responsible according to law for his actions at the time when the act was done or omission made, then if it appears to the jury before whom such person is tried that he did the act or made the omission charged but was insane as aforesaid at the time when he did or made the same, the jury shall return a special verdict to the effect that the accused was guilty of the act or omission charged against him but was insane as aforesaid at the time when he did the act or made the omission." Trial of Lunatics Act, 1883, sec. 2, sub-s. 1.

"Where such special verdict is found the Court shall order the accused to be kept in custody as a criminal lunatic* in such place and in such manner as the Court shall direct till Her Majesty's† pleasure shall be known; and it shall be lawful for Her Majesty thereupon and from time to time to give such order for the safe custody of the said person during pleasure in such place and in such manner as to Her Majesty may seem fit" (sec. 1, sub-s. 2).

This section consolidates and amends

* See article on CRIMINAL RESPONSIBILITY.

† The Act applies to Ireland, "Lord Lieutenant" being substituted for "Her Majesty" (sec. 3, sub-s. 1), but not to Scotland (sec. 3, sub-s. 2).

the 39 & 40 Geo. III. c. 94, s. 1, and 3 & 4 Vict. c. 54, s. 3. Of these statutes the first was confined to cases of treason, murder and felony, the second extended to misdemeanours. The procedure prescribed by the present Act applies whatever the nature of the offence charged may be. It is not enough for the jury to find that the prisoner was insane at the time libelled. They must find *that he did the act imputed to him, as well as that he was insane at the time.* This point was considered in *Reg. v. Oxford* (1840, 9 C. & P. 525), a case under 39 & 40 Geo. III., c. 94, s. 1. The prisoner was indicted for treason in having discharged at the Sovereign pistols *loaded with powder and certain bullets.* The jury returned the following verdict: "We find the prisoner, Edward Oxford, guilty of discharging the contents of two pistols at Her Majesty, *but whether they were loaded with ball or not there is not satisfactory evidence,* and that the prisoner was of unsound mind at the time of committing the offence." Upon this a question arose as to whether the prisoner could be kept in custody or not. It was contended by the prisoner's counsel that if the pistols were not proved to have been loaded, there was no "compassing the Queen's death," and consequently no treason, and Denman, C.J., took this view. "The statute must mean," said his lordship, "that the jury are to find that that act has been done by the prisoner which fixes him as a criminal unless he is a lunatic." The jury altered their verdict so as to obviate the difficulty, and a formal decision of the question was not, therefore, required. But there seems to be no room for doubt that under the Trial of Lunatics Act, 1883, the jury must find not only the fact of the prisoner's insanity but that he did all that the law considers essential to constitute the offence charged.

Two other points must be noted in dealing with this part of the subject.

Counsel defending a prisoner may set up on his behalf the defence of insanity, although the prisoner objects to the plea, and strenuously asserts that he is not insane. In *Reg. v. Pearce* (1840, 9 C. & P. 667), the case in which this was decided, Mr. Justice Bosanquet, the presiding judge, allowed the prisoner to suggest questions to be put by his lordship to the witnesses for the prosecution to negative the supposition that he was insane, and also allowed additional witnesses to be called on his behalf for the same purpose. A grand jury have no authority by law to ignore a bill for murder on the ground of insanity, though it appear clearly from

the testimony of the witnesses examined by them on the part of the prosecution that the accused was in fact insane; but if they believe that the act done would have amounted to murder if it had been done by a person of sound mind, it is their duty to find the bill, otherwise the Court cannot order the detention of the party during the pleasure of the Crown (*Reg. v. Hodges*, 1838, 8 C. & P. 195).

2. It appears to have been at one time the law that "if a person of *unsound memory* commit *homicide* during such his insanity and continue so till the time of his arraignment, such person shall neither be arraigned nor tried, but remitted to gaol, there to remain in expectation of the King's grace to pardon him."*

This rule was, however, soon relaxed in practice, and it became usual in such cases to hold a preliminary inquiry as to whether or not the prisoner's insanity was feigned.† In *Reg. v. Southey* (1865, 4 F. & F. p. 880), a plea that the prisoner was insane at the time of trial was not set up till the trial had begun and the first witness for the prosecution had been examined. Mellor, J., on the grounds that it would be manifestly inconvenient to recommence the trial of the collateral issue, and that the evidence as to the prisoner's sanity at the time of arraignment appeared to be very much mixed up with the question as to his sanity at the time of the offence for which he was indicted, allowed the case to proceed, and put both questions at the end of the trial, whether the prisoner was in a fit state to be tried, and whether he was guilty or not guilty. It is clear, however, that this course was only adopted under the special circumstances of the case, and that even where a double defence is set up of insanity at the time of the commission of the crime charged, and insanity at the time of trial, the question of the fitness of the prisoner to be tried at all must be determined before he is called upon to plead.

(3) The law as to persons who become insane *after* committing a criminal act is very clearly and correctly stated by Hale (1 P.C. 35): If a man in his sound memory commits a capital offence, and before arraignment for it becomes mad, he ought not to be arraigned, because he cannot advisedly plead to the indictment; and if such person after his plea and before his trial become of non-sane memory, he shall not be tried; or, if

* Hale, 1 P.C. 35, on the authority of 26 Ass. 27, 3 Edw. III., *Corone*. 351.

† Hale, *ubi sup.*; and Anderson's "Reports," cliv. p. 104 (Somerville's case).

after his trial he become insane, he shall not receive judgment; and if he lose his senses after judgment he shall not be executed, for were he of sound memory he might allege somewhat in stay of judgment or execution.

High treason was formerly an exception to the rule above stated. The statute 33 Hen. VIII. c. 20, enacted, "That if any commit high treason while they are in good whole and perfect memory, and after examination become *non compos mentis*, and that it be certified by four of the council that at the time of the treason they were of good sound and perfect memory and then not mad, nor lunatic, and afterwards became mad, then they shall proceed to trial." This Act was, however, repealed by the 1 & 2 Ph. & M. c. 10; and Hale's statement of the law applies to all classes of offences.

It appears from the old authorities that the question of a prisoner's sanity at the time of trial might be tried by the jury impanelled to try the indictment against him,* or by an inquest of office to be returned by the sheriff of the county wherein the Court sits,† or, "being a collateral issue, the fact might be pleaded and replied to *ore tenus* and a *venire* awarded returnable *instanter*, in the nature of an inquest of office."‡ A special statutory procedure has now been prescribed in such cases.§ If any person charged with any offence, on being brought up to be discharged for want of prosecution or on arraignment, appear to be insane, the Court may order a jury to be impanelled to try his sanity, and if they find him insane, the Court may order him to be kept in custody until the pleasure of the Crown is made known.

The jury may form their own judgment of the state of the prisoner's mind from his demeanour while the inquest is being taken, and may thereupon find him to be insane without any evidence being led and if a prisoner shows strong symptoms of insanity in court during the inquest, it is unnecessary to ask him whether he will cross-examine the witnesses or offer any remarks or evidence.¶ If the counsel

for the defence suggests that the prisoner is insane and incapable of pleading, he must call evidence of the fact.* Where, however, the prisoner stands mute, and exhibits symptoms of insanity, which counsel for the prosecution is instructed are feigned, it is the duty of the prosecution to call evidence in support of this contention, and then the counsel for the prisoner may call witnesses to rebut any inference of simulation.† The plea of insanity at the time of trial should be set up before the prisoner has actually pleaded to the charge against him. Hale, however (1 P.C. 35), has the following statement: "In case a man in a frenzy happens by some oversight or by means of the gaoler to plead to his indictment and is put upon his trial, and it appears to the Court upon his trial that he is mad, the judge in discretion may discharge the jury of him and remit him to gaol to be tried after the recovery of his understanding especially in case any doubt appear upon the evidence touching the guilt of the fact; and this *in favorem vitæ*; and if there be no colour of evidence to prove him guilty, or if there be a pregnant evidence to prove his insanity at the time of the fact committed, then upon the same favour of life and liberty it is fit it should be proceeded in the trial in order to his acquittal and enlargement."

Where a prisoner at the time of arraignment stands mute, a jury is impanelled to try whether he does so of malice and deceit or by the visitation of God. In the former case a verdict of "not guilty" is entered on his behalf by the proper officer. In the latter case, the Court may order his detention during the pleasure of the Crown.

In *Reg. v. Pritchard* (1836, 7 C. & P. at p. 304), Mr. Baron Alderson told the jury that in such cases there were three points to be inquired into: (1) "Whether the prisoner is mute of malice or not, (2) whether he can plead to the indictment or not, and (3) whether he is of sufficient intellect to comprehend the course of proceedings on the trial, so as to make a proper defence—to know that he might challenge any juror to whom he may object, and to comprehend the details of the evidence."

A. WOOD RENTON.

CRIMINAL RESPONSIBILITY IN RELATION TO INSANITY.—That insanity may, as one of its effects, render a person not responsible for his actions is recognised by the statute law as well as by the common law of England. The

* *Reg. v. Turton*, 1854, 6 Cox, C.C. 385.

† *Reg. v. Davies*, 1853, 6 Cox, C.C. 326.

* 1 Hawk. P.C., bk. i. c. i. s. 4, n. 5.

† 1 Hawk. P.C., bk. i. c. i. s. 4.

‡ Fost. 36, Kel. 13, 1 Sev. 61, 1 Sid. 72.

§ 39 & 40 Geo. III. c. 94, s. 2.

¶ *Reg. v. Goode*, 1837, 7 A. & E. 536. The following was the oath administered to the jury in this case:—"You shall diligently inquire, and true presentment make, for and on behalf of our Sovereign Lady, the Queen, whether *John Goode*, the defendant, who stands indicted for a misdemeanour, be insane or not, and a true verdict give according to the best of your understanding. So help you God."

statute relating to this matter at present in force is the Trial of Lunatics Act, 1883, 46 & 47 Vict. c. 38, by which it is enacted that "where in any indictment or information any act or omission is charged against any person as an offence, and it is given in evidence on the trial of such person for that offence that he was insane, so as not to be responsible, according to law, for his actions at the time when the act was done or the omission made, then, if it appears to the jury, before whom such person is tried, that he did the act or made the omission charged, but was insane, as aforesaid, at the time when he did or made the same, the jury shall return a special verdict to the effect that the accused was guilty of the act or omission charged against him, but was insane, as aforesaid, at the time when he did the act or made the omission." The Act then goes on to direct that "where such special verdict is found the Court shall order the accused to be kept in custody as a criminal lunatic, in such place and in such manner as the Court shall direct, till Her Majesty's pleasure shall be known." This Act, which is described as being "an Act to Amend the Law respecting the Trial and Custody of Insane Persons charged with Offences," was passed on the 25th of August 1883, and by it certain portions of an earlier Act, passed in the year 1800,* were repealed. It extends to Ireland, but not to Scotland, and it will be observed also that its provisions have reference only to those cases in which the accused person is considered, at the time of arraignment, to be of sufficiently sound mind to be tried; the procedure with respect to those cases in which the accused is thought or alleged to be insane on arraignment, so that he cannot be tried, continuing still to be in conformity with the second section of the Act of 1800, before referred to.

The chief modifications introduced by the Act of 1883 are these. The jury are now required to find definitely whether the accused did or did not commit the offence charged against him; whilst, by the terms of the Act of 1800, the jury were required only to find specially whether the accused was insane at the time of the commission of the offence, without being required to find in set terms whether such offence had actually been committed by the accused or not. Another modification is that, whilst by the Act of 1800 in those cases in which the accused was found by the jury to have been insane at

the time of the commission of the offence he was declared by the jury to be acquitted by them on the ground of insanity, the term "acquitted" is no longer used, but the jury are now, by the terms of the Act of 1883, required to say, first, whether the accused is guilty or not guilty of the act or omission charged against him, and then, secondly, in the event of their having found the accused guilty, to say, further, whether he was sane or insane at the time of its commission or omission.

The terms of this Act have not, of course, escaped criticism, and it has been urged that there is something inconsistent in the use of the term guilty as applied to a person who at the same time is declared to be not responsible, according to law, for his actions; but, with reference to this point, it may be observed, that when the Bill was introduced into the House of Lords it was under the charge of the Lord Chancellor,* so that it may be safely assumed that this obvious criticism was not overlooked; and we may take it that the term was intentionally used, more especially as we find, by the second section of the Act, that in the event of the accused being found by the jury guilty of the offence, and also insane at the time of its commission, the Court is directed to order the accused "to be kept in custody as a criminal lunatic," thus giving still further sanction to a nomenclature which recognises, or implies, that a person may be at the same time both a criminal and a lunatic, and thus conforming in this respect to other previous† and subsequent‡ Acts of Parliament, as well as to other§ official documents.

This is a point of considerable importance, inasmuch as a person who is found insane under the provisions of this Act is placed under detention and care in a criminal lunatic asylum, and is not set at liberty unless and until it may appear to the Secretary of State to be consistent with the public safety, as well as with that of the individual himself, to permit of this being done. It is, further, to be noted that the Secretary of State is empowered|| by statute to attach to the dis-

* "Hansard," 3 S., vol. 282, p. 1302; and vol. 283, p. 922. The Earl of Selborne was then Lord Chancellor.

† 23 & 24 Vict. c. 75, Aug. 6, 1860; also 30 Vict. c. 12, April 12, 1867.

‡ 47 & 48 Vict. c. 64, Aug. 14, 1884; also 53 Vict. c. 5, sec. 340, March 29, 1890.

§ Report of Select Committee on Criminal and Pauper Lunatics, July 15, 1807.

|| 47 & 48 Vict. c. 64, sec. 5.

* 39 & 40 Geo. III. c. 94.

charge of a criminal lunatic* whatever conditions he may think fit; and, further, to order the return into custody of a person so discharged, in the event of any of the conditions being broken, or if it should appear that such person had from any cause become unfit to remain any longer at large; and thus, in the case of a prisoner who is found by the jury at his trial to have been guilty of the offence charged against him and yet to have been insane, every care is taken to protect the public from any possible further depositions by him in the future, whilst the prisoner himself receives at once such care and treatment as his insane condition may require.

Regarded from this point of view the question becomes somewhat more simple as well as more practical. It is a less complicated problem to determine, in a given case, whether a prisoner shall be treated as a criminal lunatic or as an ordinary prisoner than it is to define, in the abstract, the exact degree of mental defect or derangement which renders a person "insane so as not to be responsible, according to law, for his actions."

When a person is arraigned in court, and is charged with an offence, if there is any ground for supposing such person to be insane, the first question that arises is, whether the insanity is of a nature to render the person unfit to be called upon to plead to the indictment; and this question is considered under PLEAD (*q.v.*).

Responsibility when Offence was Committed.—In the event of the verdict of the jury, on this point, being to the effect that the accused is fit to be called upon to plead, and to take his trial, there still remains, for consideration, the larger question whether the accused was insane, "so as not to be responsible, according to law," at the time of the commission of the offence.

The rules by which the Courts are guided, in the determination of this question, are embodied in answers that were returned by the judges to certain questions submitted to them, by the House of Lords, in the year 1843. Doubts have,

indeed, been expressed in more recent times,* not only as to the authority, but also as to the correctness and sufficiency of these answers; but these doubts have not, as yet, led to any definite action. It will be necessary, therefore, to carefully consider these answers, as well as the manner in which they have been interpreted and applied in actual practice; but, in order to obtain a fuller appreciation of the difficulties which they were intended to solve, it will be well, in the first place, to take a short survey of the attitude of the

Law towards Insane Offenders antecedent to 1843.—Interesting references to the subject of insane offenders are to be found in the annals of the Roman empire, as well as in early English history, but considerations of space compel us to omit these, and to come to the time of

Coke.—This great legal authority wrote his "Institutes of the Laws of England" about A.D. 1625. The most noteworthy passages thereof, relating to madness and responsibility are the following: "Lyttleton explaineth a man of no sound memory to be *non compos mentis*. Many times (as here it appeareth) the Latin word explaineth the true sense, and calleth him not *amens*, *demens*, *furiosus*, *lunaticus*, *fatuus*, *stultus*, or the like; for *non compos mentis* is most sure and legal." Again, "*non compos mentis* is of four kinds: (1) An idiot, who, from his nativity, by a perpetual infirmity, is *non compos mentis*; (2) he that by sickness, grief, or other accident, wholly loseth his memory and understanding; (3) a lunatic that hath sometimes his understanding and sometimes not, *aliquando gaudet lucidis intervallis*, and, therefore, he is called *non compos mentis*, so long as he hath not understanding; (4) he that by his own vicious act for a time depriveth himself of his memory and understanding, as he that is drunken. But that kind of *non compos* shall give no privilege or benefit to him or his heirs. As for a drunkard, who is *voluntarius dæmon*, he hath (as hath been said) "no privilege thereby, but what hurt or ill soever he doth, his drunkenness doth aggravate it. *Omne crimen ebrietas et incendit et detegit*." Again, "In criminal causes, as felony, &c., the act and wrong of a madman shall not be imputed to him, for in those causes, '*Actus non facit reum nisi mens sit rea*;' and he is *amens*, i.e., *sine mente*, without his mind or discretion; and '*furiosus solo furore punitur*'—a madman is only punished by his madness." Again, at another

* *Vide* "History of the Criminal Law of England," by Sir James Fitzjames Stephen, 1883, vol. ii. p. 154.

* The term "criminal lunatic" is a technical term, and its meaning has been defined from time to time by statute. The "Criminal Lunatics Act, 1884," which repealed various earlier Acts, defines the term as follows:—" 'Criminal Lunatic' means any of the following persons:—(a) Any person for whose safe custody during Her Majesty's pleasure, Her Majesty or the Admiralty is authorised to give order; and (b) Any prisoner whom a Secretary of State or the Admiralty has in pursuance of any Act of Parliament directed to be removed to an asylum or other place for the reception of insane persons."

place, Coke observes, "The execution of an offender is for example, '*ut poena ad paucos metus ad omnes perveniat*,' but so it is not when a madman is executed; but should be a miserable spectacle, both against law and of extreme inhumanity and cruelty, and can be no example to others."

Hale* wrote some fifty years after Coke (*circa* 1670-5), and his writings require somewhat fuller notice, inasmuch as his observations on partial insanity were quoted by Lord Campbell, in the House of Lords, in the year 1843, in the course of the discussion upon the McNaghten case. The following passages from the "Pleas of the Crown" may be noted:—"If a traitor becomes *non compos* before conviction, he shall not be arraigned; if after conviction, he shall not be executed." Sir Matthew, when writing this, evidently had the statute† of Henry VIII. in his mind. Again, "If a lunatic, during his lunacy, a man distract by force of disease, or *non compos*, kill himself, no felony." Again, "A man that is *non compos* kills another, this is no felony; the same for a lunatic during his lunacy." These extracts indicate that, in Hale's time, the term lunatic was applied to a person who was supposed to have lucid intervals, during which he was deemed to be *compos mentis*; whilst at the present time the term lunatic has a wider meaning. The "Lunacy Act, 1890" (53 Vict. c. 5, sec. 341) gives the following definition: "'Lunatic' means an idiot or person of unsound mind."

Hale divides insanity, generally, into (1) *Dementia naturalis*, or *a nativitate*, i.e., Idiocy; and (2) *Dementia accidentalis* or *adventitia*; and then, further, he divides *dementia adventitia* into partial insanity and total insanity: the term lunatic being more particularly applied by him to a person whose insanity was supposed to be intermittent.

With reference to the distinction between partial and total insanity he goes on to say, "There is a partial insanity and a total insanity. The former is either in respect to things—*quoad hoc vel illud insanire*; some persons that have a competent use of reason in respect of some subjects are yet under a particular dementia in respect of some particular discourses, subjects, or applications—or else it is partial in respect of degrees, and

this is the condition of very many, especially melancholy persons, who for the most part discover their defect in excessive fears or griefs, and yet are not wholly destitute of the use of their reason; and this partial insanity seems not to excuse them in the committing any offence for its matter capital. It is very difficult to determine the invisible line that divides perfect and partial insanity, but it must rest upon circumstances duly to be weighed and considered, both by judge and jury, lest on the one side there be a kind of inhumanity towards the defects of human nature, or on the other side too great an indulgence given to great crimes. The best measure I can think of is this: Such a person as, labouring under melancholy distempers, hath yet ordinarily as great understanding as ordinarily a child of fourteen years hath, is such a person as may be guilty of treason or felony."

With respect, however, to this best measure, that was proposed by Hale for the purpose of distinguishing partial from perfect insanity, Sir James Fitzjames Stephen has, most justly, observed,* "Surely no two states of mind can be more unlike than that of a healthy boy of fourteen and that of a man 'labouring under melancholy distempers.' The one is healthy immaturity, the other diseased maturity, and between them there is no sort of resemblance."

This proposed best measure will not, indeed, bear examination from whatever point it is viewed. Hale affirms that there is a "partial" insanity, and that there is a "total" insanity; and then he proceeds to set out his best measure of "partial" insanity; but he omits to give any clear and precise indication of the measure of "total" insanity, which he proposes to differentiate and distinguish from "partial" insanity. In one passage he speaks of persons who "yet are not wholly destitute of the use of their reason" as being persons who are only "partially" insane; and if from this it is to be inferred that persons in a state of "total" insanity are wholly destitute of the use of their reason, it is clear that there is a want of agreement between this mode of measuring and defining "total" insanity and the mode proposed by the best measure. The age of fourteen is proposed by the best measure as a standard, and it is said that a person who, although labouring under melancholy distempers, hath "yet ordinarily as great understanding as ordinarily a child of fourteen hath," is only labouring under "partial" insanity; leaving it

* Sir Matthew Hale was born in 1609; became Lord Chief Justice of the King's Bench 1671, and died 1676.

† This statute was the 33 Henry VIII. c. 20, which Blackstone characterised as "this savage and inhuman law."

* "History of Criminal Law," vol. ii. p. 150.

to be inferred that if such a person has only "as great understanding" as a child of less than fourteen ordinarily has, he is labouring under total insanity; and yet, obviously, it would be by no means in accordance with the common meaning of language to say that a child is ordinarily *wholly* destitute of the use of his reason until he attains the age of fourteen years. No doubt, a child, until he attains that age, is not fully responsible in the eye of the law; but it is evident that to describe a child who, owing to its age, is not responsible, as being, therefore, *wholly* destitute of the use of its reason, would be a misuse of terms.

It is necessary to examine somewhat closely this doctrine of partial insanity, because of the grave issues which have in the past been made to depend upon it. Etymologically, insanity means unsoundness, so that the distinction between sanity and insanity is the distinction between soundness and unsoundness; and "partial" unsoundness is still unsoundness, if it is anything. Unsoundness may vary widely as to its kind and as to its degree, and may vary equally widely as to its causes and as to its consequences; but to attempt to divide unsoundness into partial and perfect unsoundness is to attempt to set up a non-natural division.

In saying this, however, it is very far from being the intention to imply that any deviation, however slight, from a typical state of mental soundness is, necessarily, sufficient to invalidate every act that the subject of such deviation may commit. In the words used by the Lord Chief Justice Denman during the trial of Oxford, "Every sort of insanity, and every mode of proving it, must have reference to the particular object with which it is laid before the Court."

But to state, as if it were an admitted fact, that there is a "partial" insanity and that there is a "total" insanity, and then to go on to lay down a rule that "partial" insanity does not exempt from responsibility, is obviously and certainly the way to prepare an inevitable pitfall.

To proceed with this chronological survey, the next event calling for notice is the trial of Arnold, which took place about fifty years after the time of Sir Matthew Hale.

Case of Edward Arnold.—He was tried at Kingston, in 1723, for firing at, and wounding, Lord Onslow. The evidence showed that the relatives of the accused regarded him as being insane, and that he laboured under insane delusions, imagining that Lord Onslow sent devils and imps into his room at night to disturb

his rest and to plague him in various ways.

The chief point in the case to be noticed is the charge of the learned judge, Mr. Justice Tracy, which was to the effect that "a prisoner in order to be acquitted on the ground of insanity must be a man that is totally deprived of his understanding and memory, and doth not know what he is doing no more than an infant, than a brute or a wild beast."

It is scarcely to be wondered at that, acting under these directions, the jury found the prisoner guilty, although at the intercession of Lord Onslow the death sentence was commuted to one of imprisonment for life. It will be observed that Mr. Justice Tracy departed somewhat from Sir Matthew Hale's proposed measure, and, instead of taking the age of fourteen as his standard, he substituted the words "an infant," words which are obviously wanting in precision, whilst the reference to "a brute or a wild beast" can only be regarded as a figure of speech, and figures of speech are not very helpful in determining difficult points.

Case of Earl Ferrers.—Thirty-seven years after the trial of Edward Arnold came the trial of Earl Ferrers for the murder of his steward in 1760. The case is fully reported in Howell's "State Trials," and Smollett* in his history of England also devotes several pages to an account of the case. In the opinion of all who knew Lord Ferrers he had given manifold proofs of insanity. His relatives had long before deliberated upon the expediency of taking out a commission of lunacy, but were prevented by the apprehension of failure, inasmuch as the earl's madness did not, it was said, appear in his conversation but in his conduct. The murder was planned with great deliberation; but no precautions were taken by the accused for concealment or escape, inasmuch as he regarded the murder as a meritorious act. In conformity with the procedure then in force the earl was not allowed to be defended by counsel, but was compelled to conduct his own defence, and to endeavour to establish his own lunacy, whilst the prosecution was conducted by the Solicitor-General, who urged that the prisoner should be convicted unless it could be shown that he had not sufficient capacity to form a design and to know its consequences. It is perhaps scarcely to be wondered at that under such circumstances the prisoner was convicted and executed. Smollett says that "the circumstances of

* "History of England," by T. Smollett, M.D., 1805, vol. v. pp. 198-208.

this assassination appeared so cruel and deliberate that the people cried aloud for vengeance, and the Government gave up the offender to the justice of his country."

In some further comments upon the case Smollett observes, "perhaps it might be no absurd or unreasonable regulation in the legislature to divest lunatics of the privilege of insanity, and in cases of enormity subject them to the common penalties of the law; for, though in the eye of casuistry, consciousness must enter into the constitution of guilt, the consequences of murder committed by a maniac may be as pernicious to society as those of the most criminal and deliberate assassination, and the punishment of death can hardly be deemed unjust or rigorous when inflicted upon a mischievous being, divested of all the perceptions of reason and humanity." It would not appear from the context that Smollett here means to imply that, in his opinion, Earl Ferrers was such a being "divested of all the perceptions of reason." His argument rather is that, whilst recognising that the earl was insane, it was hardly worth while to seriously discuss the question whether the degree of insanity had reached the point at which it would be right to hold him no longer responsible, inasmuch as it might, he suggests, be no unreasonable regulation to subject all lunatics, in cases of enormity, to the common penalties of the law, including the punishment of death. This is, of course, one way of cutting the knot, and it is probable that a certain number of persons might, in any age, be found holding this opinion, so openly expressed by Smollett; and it is certainly better that those who hold this opinion should express it openly and boldly, so that the actual point at issue may be clearly known.

Blackstone published his "Commentaries of the Laws of England,"* about the year 1765, that is to say, about one century after the time of Hale. He was a contemporary of Smollett, the historian, but his writings evince no disposition on his part to share Smollett's views as to the justice and advisability of subjecting lunatics to the common penalties of the law. On the contrary, he expressly repudiates opinions of that kind; as is evident from his characterising as a "savage and inhuman law," the Act,† that was passed in the reign of Henry VIII., decreeing that if a person committed high treason, and, afterwards, should "happen

to fall to madness or lunacy," "he should suffer execution, his lunacy notwithstanding." Blackstone lays down the following general rules:—

"If a man in his sound memory commits a capital offence, and before arraignment for it, he becomes mad, he ought not to be arraigned for it; because he is not able to plead to it with that advice and caution that he ought. And if, after he has pleaded, the prisoner becomes mad, he shall not be tried; for how can he make his defence? If, after he be tried and found guilty, he loses his senses before judgment, judgment shall not be pronounced; and if, after judgment he becomes of non-sane memory, execution shall be stayed; for peradventure, says the humanity of the English law, had the prisoner been of sound memory, he might have alleged something in stay of judgment or execution."

Blackstone also quotes, with approval, what Coke had previously said as to the miserable spectacle against law, and the extreme inhumanity, and cruelty, and uselessness of the execution of a madman. And he also quotes, with equal approval, from Beccaria that "crimes are more effectually prevented by the *certainty* than by the *severity* of punishment;" and also the saying of Montesquieu that "the excessive severity of laws hinders their execution." He then goes on to say that "it is a melancholy truth that among the variety of actions that men are daily liable to commit, no less than a hundred and sixty have been declared by Act of Parliament to be felonies without benefit of clergy; or, in other words, worthy of instant death."

After the date at which Blackstone wrote, the next event of importance with respect to the attitude of the criminal law towards insanity was the trial of Hadfield.

Case of James Hadfield.—He was tried in the Court of King's Bench on the 26th of June 1800, for high treason, in shooting at King George III., in Drury Lane Theatre on the 15th of May of that year.*

The trial took place before Lord Kenyon (the Lord Chief Justice), Mr. Justice Grose, Mr. Justice Lawrence, and Mr. Justice Le Blanc. The Counsel for the prosecution were, the Attorney-General (Sir John Mitford, afterwards Lord Redesdale); the Solicitor-General (Sir William Grant); and Mr. Law (afterwards Lord Ellenborough); the Counsel assigned for the prisoner were the Honourable Thomas

* "Commentaries of the Laws of England," by Sir William Blackstone, Knt., book iv. ch. 2.

† 33 Henry VIII. c. 20.

* Howell's "State Trials," 27, 2019; also the *Times*, June 27, 1800.

Erskine (afterwards Lord Chancellor), and Mr. Serjeant Best (afterwards a judge of the King's Bench). It is not unimportant to take note of this list of names, inasmuch as the trial derives additional weight from the great array of legal talent and learning engaged in it. Also, it must be observed, that the prisoner was charged with the crime of treason, and, consequently, his counsel were entitled to address the jury on his behalf, whilst in the case of Lord Ferrers, as we have seen, the prisoner was charged with the crime of murder, a crime which, at that date, did not entitle a prisoner to similar services from his counsel.

Hadfield had formerly been a private in a dragoon regiment, and had been severely wounded in the battle of Lancelles, in May 1794, when he received several sabre wounds in the head; and it was given in evidence that, following upon these injuries, he had been discharged from the army on account of insanity, and that he had suffered from attacks of maniacal frenzy, and had laboured under various insane delusions.

On the day on which the crime was committed, the prisoner placed himself in a convenient position in Drury Lane Theatre, before the commencement of the performance; and then, when the king entered the Royal box, he fired two shots in the direction of the king, neither of which, happily, took effect.

Proof was given of the purchase of pistols, and also of gunpowder; and slugs were found in the pilaster near where the king had stood.

It must be noticed, as a point of considerable importance, that his Royal Highness the Duke of York stated, in the course of his evidence, that he saw the prisoner immediately after the act and that his conversation was as perfectly collected as anything could possibly be, and that it exhibited no symptoms of derangement; but, in cross-examination, his Royal Highness said that the prisoner stated that he did the act because he was tired of his life, and he thought he would certainly be put to death if he made an attack on His Majesty's life. In the course of the trial it was further proved that the prisoner, on his apprehension, said that he knew perfectly that his life was forfeited, that he was tired of life, and regretted nothing but the fate of a woman who was his wife, and would be his wife a few days longer, he supposed. The report goes on to say that he spoke these words calmly, and without any apparent derangement, and that with equal calmness, he repeated that he

was tired of his life, that his plan had been to get rid of it by other means than suicide; that he did not intend anything against the life of the king, for he knew that the attempt only would answer his purpose. The Attorney-General, in that portion of his speech which had reference to the question of exemption from punishment on the ground of insanity, said that, according to the law of this country, "if a man be completely deranged so that he knows not what he does, if he be so lost to all sense that he cannot distinguish good from evil, and cannot judge of the consequences of his action, then the mercy of the law said that he cannot be guilty of any crime, because the will which, to a certain extent, is the essence of every crime is wanting;" and went on to say further, that "persons of very weak understandings had committed crimes and had been punished in consequence of them, though their understandings were considerably below the ordinary level, because juries had decided that they had sufficient understanding to discriminate between right and wrong." He alluded to the cases of Arnold and of Earl Ferrers, remarking, with respect to Arnold, that "there was not a doubt but that the man was deranged;" and, with respect to Earl Ferrers, "that he was occasionally insane there was no doubt."

Erskine,* in his speech for the defence, addressed himself more especially to the particular case of the prisoner whom he was then defending; and he described Hadfield's delusions in these terms:—"He imagined that he had constant intercourse with the Almighty author of all things; that this world was coming to a conclusion, and that, like our blessed Saviour, he was to sacrifice himself for its salvation; and so obstinately did this morbid image continue, that you will be convinced that he went to the theatre to perform, as he imagined, that blessed sacrifice, and because he would not be guilty of suicide, though called upon by the imperious voice of Heaven, he wished that, by the appearance of crime, his life might be taken away from him by others."

Sir James Fitzjames Stephen† points out, however, that the existence of the whole of these delusions was not actually proved by evidence at the trial, owing to the case having been stopped by the presiding judge, whilst Erskine had, as he stated, still twenty witnesses to call; and,

* For Erskine's speech, see Howell's "State Trials," vol. xxvii. pp. 1307-30.

† *Op. cit.*, vol. ii. p. 159.

in another passage, Sir James Stephen summarises the case as follows: * "The undisputed facts were that Hadfield (whose head had been almost cut to pieces in action, and who had been confined as a lunatic) was on the Tuesday night full of the wildest delusions, and in a state of furious mania, and that on the Thursday he fired a pistol at George III. under the influence of similar delusions. Upon this theme Erskine made an oration which proves satisfactorily enough that the act was not criminal."

Although, however, Erskine's speech was the speech of an advocate and must not therefore be assumed to carry the weight of a judicial decision, there were in it two important points which were strongly insisted upon, and apparently were not controverted.

Referring to the words of Coke, "He that *wholly* loseth his memory and understanding," and also to the charge delivered by Mr. Justice Tracy in Arnold's case, to the effect that "a prisoner, in order to be acquitted on the ground of his insanity, must be a man that is *totally* deprived of his understanding and memory," Erskine said, "no such madman ever existed in the world."

The other important point upon which Erskine insisted was contained in the following passage of his speech:—"When a man is labouring under a delusion, if you are satisfied that the delusion existed at the time of the committal of the offence, and that the act was done under its influence, then he cannot be considered as guilty of any crime"; and the passage was quoted with approval by Lord Lyndhurst in the House of Lords in 1843.†

The summing up of the presiding judge, Lord Kenyon, as quoted by Lord Lyndhurst,‡ was to the following effect: "With regard to the law, as it is laid down, there can be no doubt on earth. To be sure, if a man is in a deranged state of mind at the time, he is not criminally answerable for his acts; but the material part of the case is whether, at the very time when the act was committed, the man's mind was sane." And then, after some further observations, the learned judge is reported to have continued: "His sanity must be made out to the satisfaction of a moral man, meeting the case with fortitude of mind, knowing he has an arduous duty to discharge; yet, if the scales hang anything like even, throwing in a certain amount of mercy to the party." With these directions to guide them, the jury, without

hesitation, found that Hadfield was insane at the time when he committed the act with which he was charged. Having been told that the material part of the case was "whether, at the very time when the act was committed the man's mind was sane," there could be little doubt as to the verdict; but it is difficult to see how the verdict can be reconciled with the statement of the law, as set forth by the Attorney-General in his speech for the prosecution.

Taking the points of that statement *seriatim*, it is clear that Hadfield was not so completely deranged as not to know what he was doing. On the contrary, he knew perfectly well that he was firing a loaded pistol in the direction of the king. Whether he was so lost to sense that he could not "distinguish good from evil" might possibly depend upon the interpretation to be put upon the words "good" and "evil"; but it is clear that Hadfield knew that he was doing an act that was forbidden by the law. On his apprehension he said he knew that his life was forfeited. It is also clear that Hadfield knew what would be the immediate consequence of his act, although, with regard to its further, or more remote, consequence, his anticipations were not fulfilled, inasmuch as he was not put to death. And then, finally, with respect to the question whether he had "sufficient understanding to discriminate between right and wrong" there can be no hesitation as to the answer, provided that the words "right" and "wrong" are interpreted in the manner for which Lord Brougham contended when he said, "the right is when you act according to law, and the wrong is when you break it."*

Twelve years after the trial of Hadfield two cases were tried within a few months of each other at the Old Bailey, in which a very different attitude towards the accused was assumed.

Case of John Bellingham.†—He was tried on the 15th of May 1812, before Sir James Mansfield, Baron Graham, and Mr. Justice Grose, for the murder of the Right Honourable Spencer Perceval, the First Lord of the Treasury, by shooting him with a pistol in the lobby of the House of Commons.

Before the prisoner was called on to plead, Mr. Alley, on his behalf, applied for a postponement of the trial on the ground that the prisoner could be proved to be insane if sufficient time were allowed for witnesses to appear in his favour; but this application was refused, and the

* *Op. cit.*, vol. ii. p. 151.

† "Hansard," vol. lxvii. p. 719.

‡ "Hansard," vol. lxvii. pp. 719-20.

* "Hansard," vol. lxvii. p. 732

† *The Times*, May 16, 1812.

trial proceeded, with the result that the prisoner was found guilty and was sentenced to death. The act was committed on the 11th of May, the trial took place on the 15th, and the prisoner was executed on the 18th of that month.

The summing up of Chief Justice Mansfield, as quoted by Lord Lyndhurst, in the House of Lords, in 1843, was in the following terms.* "There is a species of insanity, where people take particular fancies into their heads, who are perfectly sane and sound of mind upon all other subjects; but that is not a species of insanity which can excuse any person who has committed a crime, unless it so affects his mind, at the particular period when he commits the crime, as to disable him from distinguishing between good and evil, or to judge of the consequence of his actions." And afterwards, Chief Justice Mansfield put the case to the jury thus:—"The question is this, whether you are satisfied that he (the prisoner) had a sufficient degree of capacity to distinguish between good and evil, and to know that he was committing a crime when he committed this act; in that case you will find him guilty."

Case of Thomas Bowler.†—He was tried at the Old Bailey, on the 3rd of July, of the same year, on a charge of firing a loaded blunderbuss at a person named William Burrowes, on the 30th of May. The presiding judge was Sir Simon Le Blanc.

Burrowes, although injured, was not killed by the discharge, and was able to give evidence at the trial. The prisoner was, however, tried under the provisions of a statute which made shooting a capital offence, and he was ultimately found guilty and was executed.

At the trial, Mr. Charles Holship, Clerk of the Petty Bag Office in the Court of Chancery, produced a Statute of Lunacy, which had been obtained against the prisoner, under the Great Seal, bearing date the 17th of June, 1812, with the decision of the jury that the prisoner was deranged since the 30th of March previous.

The summing up of the learned judge, as quoted by Lord Lyndhurst, was to the following effect:‡ "It is for you (the jury) to determine whether the prisoner, when he committed the offence with which he stands charged, was, or was not, incapable of distinguishing right from wrong, or whether he was under the influence of any delusion with respect to the prosecutor,

which rendered his mind at the moment insensible of the nature of the act he was about to commit, since, in that case, he would not be legally responsible for his conduct. On the other hand, provided you should be of opinion that, when he committed the offence, he was capable of distinguishing right from wrong, and was not under the influence of such a delusion as disabled him from distinguishing that he was doing a wrong act, in that case he is answerable to the justice of his country, and guilty in the eye of the law."

The report given by the *Times* of the summing up differs in no material particular from the foregoing; and it will instantly strike the reader that neither in the summing up of Chief Justice Mansfield in Bellingham's case, nor in that of Mr. Justice Le Blanc in Bowler's, are there any words at all equivalent to that portion of the summing up of Lord Kenyon in Hadfield's case, in which the jury were directed that the material part of the case was "whether, at the very time when the act was committed the man's mind was sane." What might have been the result, supposing the jury in Hadfield's case had been charged in the terms employed in Bowler's case; or what might have been the result, supposing the jury in Bowler's case had been charged in the terms employed by Lord Kenyon in Hadfield's case, can only be a matter of conjecture.

Hadfield had been discharged from the army on account of being insane; whilst Bowler had been declared, by a jury, to have been insane before the commission of the act with which he was charged, as well as at the time of its commission.

Hadfield had suffered from attacks of mania; whilst Bowler was proved, in evidence, to have suffered from epilepsy. But then, on the other hand, Hadfield protested that he intended nothing against the life of the king; whilst the evidence taken at the trial of Bowler showed that he had previously threatened Burrowes, and had said, "Damn that Burrowes; I will burrow him before long. I will be the death of him, if I am hanged for it the next minute, so sure as my name is Bowler." And how far this difference between the case of Bowler and that of Hadfield might have led to the rejection of the defence of insanity in the one case, and its admission in the other, even if precisely similar terms had been used, in both cases, in directing the juries, must be left open to conjecture. That, however, the words of the charges delivered by the learned judges did differ in the two cases,

* "Hansard," vol. lxvii. p. 718.

† The *Times*, July 4, 1812.

‡ "Hansard," vol. lxvii. p. 717.

and did differ to a very material extent, must not be overlooked.

Before quitting the consideration of these two cases of Bellingham and Bowler, it is right to point out that both of them afterwards became the subjects of adverse comment on the part of high legal authorities. With respect to the case of Bellingham, Lord Brougham* stated in the House of Lords, in 1843, that he had never known Lord Erskine, with whom he had discussed this case, more moved to indignation than he had been by the refusal of the learned judge before whom Bellingham was tried, to postpone the trial in order to give time for the production of evidence as to the prisoner's insanity. And, with respect to Bowler's case, when allusion was made to it by the Attorney-General (Campbell) in the course of the trial of Oxford, Baron Alderson is reported to have said,† "Bowler was executed, I believe, and very barbarous it was."

The next case demanding notice brings us nearer to our own time.

Case of Edward Oxford.—He was tried on the 9th and 10th of July 1840 on a charge of treason, in firing at the Queen, with loaded pistols. The trial took place at the Central Criminal Court, before Lord Denman (the Lord Chief Justice), Mr. Baron Alderson, and Mr. Justice Paterson. When considering their verdict, the jury at first doubted whether it had been satisfactorily proved that the pistols were loaded; but, ultimately, they returned a verdict of acquittal on the ground of insanity.

The prisoner, at the time of the trial, was between eighteen and nineteen years of age. Evidence was given of various insane acts that he had committed at different times, whilst witnesses were also called to prove insane acts on the part of his father and grandfather; but the points in the case which specially demand notice are the speech of the Attorney-General (Campbell) for the prosecution, the medical evidence, and the summing up of the judge. The Attorney-General said, in the course of his speech, that to make the defence of insanity effective, counsel for the defence "must show not only that at other times the party on whose behalf the plea was set up had exhibited strangeness of manner, eccentricity of conduct, violence to others, or active delusion, but he must show that, at the time at which the offence for which he was tried was committed, he was not an

accountable agent—that at that very time he was labouring under delusions, and that he could not distinguish between right and wrong, and that he was unconscious of consequences at the time he was committing the offence. He must likewise inform them that, according to the law of England, in order to establish exemption from responsibility for a criminal charge there must be even a greater degree of aberration of mind proved than would be necessary in a civil transaction to annihilate a contract made by the party, or to prevent him from continuing in the management of his own affairs. In criminal proceedings it must be proved that the insanity at the time was an insanity connected with the offence committed. In civil proceedings it was enough to show general unsoundness of mind, and although the insanity was not connected with the particular transaction, the validity of which was called in question, still it would be sufficient to set it aside."* The Attorney-General referred to the case of Arnold, who was "to a certain extent deranged;" to Lord Ferrers' case, and said, "It was proved at the time that several of his lordship's relations had been insane, and that he himself had been so at different times," but there was no reason to suppose that he was unconscious of the act he was committing. He referred also to the case of Bowler, an epileptic, who had been found insane by a commission, and who yet was found guilty; and it was here that Baron Alderson gave utterance to the forcible remark which has been already quoted.†

After counsel for the defence had addressed the jury, and had called witnesses who were acquainted with the prisoner, Dr. Conolly was called, and, after a few preliminary questions, he read the notes of his examination of the prisoner, which were as follows:—"A deficient understanding. Shape of the anterior part of the head that which is occasionally seen when there has been some disease of the brain in early life. An occasional appearance of acuteness, but a total inability to reason. A singular insensibility as regards the affections. An apparent incapacity to comprehend moral obligations, to distinguish right from wrong. An absolute insensibility to the heinousness of his offence and to the peril of his situation. A total indifference to the consequence of the trial. Acquittal will give him no particular pleasure, and he seems unable to

* This was said, it will be remembered, twenty-five years before the trial of the case of *Banks v. Goodfellow* (see art. TESTAMENTARY CAPACITY).

† See previous column.

* "Hansard," vol. lxxvii. p. 730.

† Carrington and Payne, Reports, vol. ix. p. 533.

comprehend the alternative of his condemnation and execution. His offence is like that of other imbeciles who set fire to buildings, &c., without motive, except a vague pleasure in mischief. He appears unable to conceive anything of future responsibility."

In the summing up of the Lord Chief Justice the following passages specially deserve attention:—"Then, a defence was set up which required them, further, to inquire whether, at the time, they could consider him to be in possession of his reason, so as to be responsible for his actions." . . . "If a man were the agent of a controlling disease which he could not at all resist, he was not then held to be a guilty party, and he would be entitled to an acquittal upon that ground. Cases had been referred to (of insanity) respecting which he might remark generally that this was a kind of matter in which they did not expect to find that any precedent would apply. Every case must to some extent stand on its own base. That man charged as a criminal is not responsible for the act who is in the language of our law *non compos mentis*—that is, unable to distinguish between right and wrong. Every sort of insanity and every mode of proving it must have reference to the particular object with which it was laid before the Court. Here the object was to show that, at the time of committing the act, the prisoner was not able to distinguish right from wrong. The whole case being now before them, he would leave them to pronounce their verdict, with perfect confidence that their verdict would be satisfactory to their own minds, and form a beacon for future juries who might be called on to pronounce in cases of equal difficulty."

The foregoing report of this summing up is taken from the *Times*. In the report given by Carrington and Payne (vol. ix. p. 547) there is a not altogether unimportant difference in some of the passages. One of those passages, as given by them, runs thus: "and then, upon the whole, the question will be whether all that has been proved about the prisoner at the bar shows *that he was insane* at the time when the act was done, whether the evidence given proves a disease in the mind as of a person quite incapable of distinguishing right from wrong."

Now, if these were the precise words that were actually used, it may be surmised that the former part of this sentence as being more easily understood, would be more clearly remembered by the jury than the latter part; and that the

instruction given to them, in those words, to consider whether the evidence showed that the prisoner "*was insane* at the time when the act was done" would not be without its effect upon the verdict.

It will be seen that the counsel for the prosecution, in this case, felt himself compelled, in conformity with the law, as it stood at that date, to contend that, in order to establish exemption from responsibility for a criminal charge, it was requisite to prove even a greater degree of aberration of mind than would be necessary in a civil cause; whilst the Lord Chief Justice, in his summing up, although not directly controverting this point, particularly directed the jury that every case must stand on its own merits, and that every sort of insanity and every mode of proving it must have reference to the particular object with which it was laid before the Court.

The case was conducted with conspicuous forbearance towards the prisoner, and the jury were charged in terms which rendered it not difficult for them to find that he was insane.

Case of McNaghten.*—Owing to the importance which this case has acquired, it is necessary to consider with care the evidence given during its course. He was tried at the Central Criminal Court in March 1843 for the wilful murder of Mr. Edward Drummond, the private secretary of Sir Robert Peel. The judges, before whom the case was tried were Lord Chief Justice Tindal, Mr. Justice Williams, and Mr. Justice Coleridge. The leading counsel for the prosecution was the Solicitor-General (Sir William Follett); whilst Mr. Cockburn (afterwards Lord Chief Justice) assisted by Mr. Clarkson and Mr. Bodkin, conducted the defence. Evidence was given to show that on the 20th of January the prisoner shot Mr. Drummond in the back, without any previous altercation, or any provocation on Mr. Drummond's part. It appeared that the intention of the prisoner had been to shoot Sir Robert Peel, and that, with that intention, he had watched his house; and that, seeing Mr. Drummond come out from Sir Robert's house, in Whitehall Gardens, he followed him, and shot him, under the mistaken belief that he was shooting Sir Robert Peel.

One witness stated that, in the month of November previous, he was walking with the prisoner towards Whitehall, and on witness saying to him, "That is Sir Robert Peel's residence," the prisoner burst out with an oath, saying, "Damn

* The *Times*, March 4 and 6, 1843; also Sessions Papers of Central Criminal Court.

him! or sink him!" and there was other evidence to show that the deed was premeditated. Upon the conclusion of the evidence for the prosecution, Mr. Cockburn addressed the jury for the defence, and concluded his speech in the following terms, as reported by the *Times*. "He did not bring forward this as a case of complete, but of partial insanity; of what a great French authority had denominated homicidal monomania. He trusted he had satisfied the jury, by the authorities he had quoted, that there existed such a disease as partial insanity, or homicidal monomania, in which the unhappy patient, acting under the influence of instinct was led on by delusion to commit crime for which morally he could not be held responsible."

The learned counsel having concluded his address to the jury, proceeded to call witnesses; and the evidence given by these witnesses proved most conclusively not only that the prisoner was insane at the time when he committed the act for which he was being tried, but also that he had been insane for a long time previously, and, further, that the act with which he was charged was the direct outcome of the insane delusions under which he laboured.

The prisoner's father, who resided at Glasgow, stated that, two years before the date of the trial, the prisoner came to his house, and asked him to put a stop to a persecution that was being raised against him; and that, a week or two afterwards, the prisoner called on him again, and asked him if he had made any endeavour to stop the persecution against him, and said that he was followed constantly by spies, night and day. Witness then continued: "I asked him what they did to him, did they speak to him? He said they did not, but that they laughed in his face frequently, and, when he turned round, they shook their heads at him, raised their arms, and shook their fists in his face, and frequently those of them who had sticks would shake their sticks in his face likewise. He also mentioned a man who had a few, perhaps a dozen, straws in his hand, and said that, whenever he looked round, he saw this individual shaking a few straws in his face. I asked him whether, if I went out with him, he could point out any spies to me. 'Oh, no,' said he; 'if they saw you with me, they would not follow me at all; it is only when I am alone they follow me.' I asked him what the man did who had the straws, and whether he understood what he meant by the straws. He said, 'It probably meant that I was to be

reduced to a state of beggary by these straws.' He spoke rationally enough on other subjects. I saw him again the third time, in three or four weeks. He asked me if I had applied to Sheriff Bell to stop the persecutions, and to prevent these spies following him. He also asked me to apply to the procurator-fiscal to stop the persecutions. He said that he could not rest night or day in consequence of being annoyed by the spies. He told me that he had left Glasgow in order to avoid them; that he went to England to avoid them, and even to France to escape from the persecution; that he had no sooner landed in France than he saw the spies following him there, and that it was perfectly useless for him to go anywhere else. On other subjects he appeared quite rational like other people." Several other witnesses, including one of the sheriffs for the county of Lanark, a Member of Parliament, and the minister of the parish of Gorbals, near Glasgow, then gave similar evidence, which must necessarily have produced a powerful effect on the minds of the jury and of all who heard it.

The Provost of Glasgow, on whom the prisoner had called, in May 1842, said: "His statement was to the effect that he wished for my influence to protect him against certain annoyances and persecutions that he was exposed to. He said that he was dogged and followed; and that he had been all that night in the fields, in the suburbs, in consequence of his apprehensions from these parties, and that he was afraid to go home; that they had an ill-will against him. He did not assign any reason. I think he said it was personal danger he was afraid of. He seemed to have an impression that parties were following him, and threatening him, but I could not make out who they were. I told him that I considered he was labouring under some hypochondriacal affection, and asked him whether he had been treated as a person that was deranged in mind. He said, No." Another witness, the Commissioner of Police at Glasgow, said that the prisoner came to him about eighteen months before, and made a complaint of persecutions which proceeded from the chapel in Clyde Street, from the Catholic priests, assisted by a party of Jesuits and Tories. At another interview, three or four months subsequently, he said they were worse than ever. The last time the witness saw him was in August last. He then made the same complaints.

Dr. E. J. Monro then gave evidence to the following effect: "He had examined the prisoner, who said that he was persecuted by a system, or crew, at Glasgow,

Edinburgh, Liverpool, London, and Boulogne: that this crew preceded or followed him wherever he went, that he had no peace of mind, and that he was sure it would kill him; that in Glasgow he observed people in the streets pointing at him and speaking of him. They said "that is the man, he is a murderer, and the worst of characters." He was tossed like a cork on the sea, and wherever he went, in town or in country, on sea or on shore, he was watched and followed. At Edinburgh he saw a man on horseback watching him; another person nodded to him and said, "that's he;" that he had appealed to the authorities at Glasgow for protection and relief, but his complaints had been sneered at and scouted by Sheriff Bell, who had it in his power to put a stop to the persecution if he liked. If he had had a pistol in his possession he would have shot Sheriff Bell dead as he sat in the Court-house; that the procurator-fiscal, Mr. Sheriff Bell, Mr. Alison, and Sir Robert Peel might have put a stop to this system of persecution if they would; that on coming out of the Court-house he had seen a man frowning at him with a bundle of straws under his arm, that he knew well enough what was meant; that everything was done by signs; that he was represented to be under a delusion, that the straw denoted that he should lie upon straw in an asylum, &c. &c. . . . that he imagined the person at whom he fired to be one of the crew, a part of the system that was destroying his health, that when he saw the person at whom he fired, every feeling of suffering which he had endured for months and years rose up at once in his mind, and that he conceived that he could obtain peace by killing him." He had no doubt of the presence of insanity sufficient to deprive the prisoner of all self-control. Mr. Cockburn then asked: "Is it consistent with the pathology of insanity that a partial delusion may exist, depriving a person of all self-control whilst the other faculties may be sound?"

Witness: "Certainly, monomania may exist with general sanity. He frequently knew a person insane upon one point exhibit great clearness upon others not associated with his delusions. He had seen clever architects, arithmeticians, artists whose minds were disordered on one point. An insane person may commit an act similar to the one with which the prisoner is charged and yet be aware of the consequence of such an act. Lunatics often manifested a high degree of cleverness and ingenuity and exhibited occasionally

great cunning in escaping from the consequences of their acts."

Dr. Monro was then cross-examined by the Solicitor-General, who asked: "May insanity exist with a moral perception of right and wrong?"

Witness: "Yes, it is very common."

Solicitor-General: "A person may have a delusion and know murder to be a crime?"

Witness: "If there existed antecedent symptoms I should consider the murder to be an overt act; the crowning piece of his insanity. But if he had stolen a ten-pound note it would not have tallied with his delusion."

Upon which the Solicitor-General rejoined: "But supposing he had stolen the note from one of his tormentors?"

Re-examined by Mr. Cockburn: "You have not the slightest doubt that McNaghten's moral perceptions were impaired?"

Dr. Monro: "Not the slightest."

Dr. Monro further said, "I think a delusion of this nature carries a man quite away. I mean that his mind was so absorbed by the contemplation of this fancied wrong, that he did not distinguish between right and wrong."

Dr. W. Hutchinson, in answer to the Solicitor-General, said that an act which flowed from the prisoner's delusions was an irresistible one. The impulse was so strong that nothing short of a physical impossibility would prevent him from committing any act to which his delusion might impel him. It was stated that Sir A. Morrison, Mr. McClure, Dr. Crawford, Mr. McMurdo (the surgeon of Newgate gaol), Mr. Aston Key, and Dr. Forbes Winslow were all prepared to testify to the insanity of the prisoner. The Lord Chief Justice, however, stopped the case before its completion, and his summing up to the jury as quoted by Lord Lyndhurst was in the following terms: * "The point which at last will be submitted to you will be whether or not on the whole of the evidence you have heard you are satisfied that at the time the act was committed, for the commission of which the prisoner stands charged, he had not that competent use of his understanding as not to know what he was doing with respect to the act itself—a wicked and a wrong thing—whether he knew it was a wicked and a wrong thing he had done, or that he was not sensible at the time he committed this act that it was contrary to the laws of God and man. Undoubtedly, if he were not so sensible, he is not a person so

* "Hansard," vol. lxxvii. p. 724.

responsible." The learned judge towards the close of the summing up says: "If upon balancing the evidence in your minds you should think the prisoner a person capable of distinguishing right from wrong with respect to the act with which he stands charged, he is then a responsible agent and liable to the penalties imposed upon those who commit the crime of which he is accused."

The foregoing report of the summing up is taken from Lord Lyndhurst's speech, in the House of Lords, on the 13th of March,* who stated that he had sent for the notes of the shorthand writer; but Clark and Finnely give a report of the summing up in which, in one passage, a very material difference occurs. The passage given by them is as follows:† "The question to be determined is, whether, at the time the act in question was committed, the prisoner had or had not the use of his understanding, so as to know that he was doing a wrong or wicked act. If the jurors should be of opinion that the prisoner was not sensible at the time he committed it that he was violating the laws both of God and man, then he would be entitled to a verdict in his favour; but if they are of opinion that, when he committed the act, he was in a sound state of mind, then their verdict must be against him." According to this report of the summing up, the jury were not left simply to decide the very difficult problem of how far a madman knows the difference between right and wrong; but, having been told, in the concluding paragraph, that if they thought he was in a sound state of mind when he committed the deed, their verdict must be against him, and having been fully convinced by the evidence that the prisoner was very far indeed from being in a sound state of mind, they gave their verdict without hesitation that he was insane.

Commentary.—Having now traced the main outlines of the trials of Arnold, Earl Ferrers, Hadfield, Bellingham, Bowler, Oxford and McNaghten, it may be noted that Hadfield, Oxford and McNaghten were found by the verdicts of the juries to have been insane, whilst the other four were found guilty; and, with reference to this point, it must not be overlooked that in the three cases in which the accused were found insane, the charges delivered by the learned judges to the juries contained, as we have seen, according to the reports which have been

quoted, certain words, the equivalents of which are not found in the other four cases.

Upon reading at the present time the foregoing evidence in the case of McNaghten, the feeling that first arises in the mind is one of astonishment that the unfortunate man had not been placed under proper care and treatment long before the time had arrived at which his malady caused the sacrifice of the life of a fellow-creature. The dangerous delusions under which he laboured, delusions of persecution of a typical character, were not the growth of an hour, but, on the contrary, the evidence showed clearly that they had commenced long before, and that they had gone on increasing and gathering strength, and that the unhappy man had spoken of them repeatedly to his father, to the provost, and to the commissioner of police as well as to many others. The Provost of Glasgow asked him, as we have seen, in May 1842, whether he had ever been treated as a person of deranged mind. But having asked that most pertinent question, it does not appear that the provost took any further steps for the protection either of the individual or of the public. Indeed, although Lord Campbell, subsequently, in the House of Lords, expressed the hope that it might be considered whether it would not be possible to take measures for apprehending persons in this dangerous state of mind, no thoroughly effective measures for this purpose have in fact been taken, even up to the present day. The notification of certain infectious diseases has, in some portions of the kingdom, been rendered compulsory, but the notification of dangerous delusions is not yet included in this wise provision.

The assassination, however, in open day, of so prominent a member of society as Mr. Drummond, caused, naturally enough, a profound sensation, and attracted attention to every detail of the trial; and it is therefore not to be wondered at that the portion of the speech of the learned counsel for the defence in which he stated that "he did not bring forward this as a case of complete but of partial insanity" should have been keenly criticised.

We have seen that, after most conclusive proof of the insanity of the accused had been given by a host of witnesses, the learned counsel put this question to Dr. Monro, "Is it consistent with the pathology of insanity that a partial delusion may exist, depriving a person of all self-control, whilst the other faculties

* "Hansard," vol. lxxvii, p. 724.

† Clark and Finnely, vol. x. p. 202.

may be sound?" To which question the witness is reported to have replied, "Certainly, monomania may exist with general sanity."

So that, however much regret may be felt at the introduction of the term "partial delusion," it is evident that the learned counsel, in using that unfortunate term, had the concurrence and support of the medical witness. It is scarcely fair, perhaps, to examine too minutely, the precise words in which this question was couched, considering that, probably, the report is not an absolutely verbatim one; but, taking the words as they stand, it is difficult to understand what is meant by a person being deprived of *all* self-control, whilst the *other* faculties are sound. It is equally difficult to understand what it is exactly that is meant by a *partial* delusion; and yet, as will be seen later on, this very inexact term found its way into a document by which judges have, for the last half-century, considered themselves to be bound.

McNaghten, as we have seen, insanely believed himself to be the victim of a gang or crew of persons who were bent on persistently tormenting him in a variety of ways. So strong a hold had this delusion obtained over him, that, with the object of escaping from his imaginary tormentors he, at one time, fled to England, and at another time to France, whilst at another time he passed whole nights in the fields with the same object. He complained to the authorities, but his complaints were regarded as being the irrational fancies of a deranged mind, and, most unfortunately, they obtained no serious notice. Is it to be wondered at that, mad as he was, and driven to despair by the fancied persecution which he insanely imagined was killing him, he, at last, determined to put a stop to the persecution by the only means which he thought would be effectual? So far from being a matter for surprise, this was, indeed, the result that might naturally have been anticipated, unless steps had been taken to avert it by placing the unfortunate man under proper control. The evidence proved clearly enough that the unhappy man was labouring under delusions, and that the delusions existed at the time of the committal of the offence, and that the offence was committed under their direct influence, but it is by no means clear that the case was rendered more simple by the use of the terms partial delusion, and homicidal monomania.

But whilst saying this, it is right to instantly go on to say also that the learned counsel was only using terms which, at

that day, had the support of eminent medical authorities. Marc, who was physician to Louis Philippe, had just then written a book on Insanity,* in which he treated not only of "homicidal monomania," but also of "suicidal monomania," of "demoniacal monomania," and of several other supposed forms of monomania; but, as Mr. Clark Bell, the President of the Medico-Legal Society of New York, has well observed, in a paper contributed by him to the Journal of that Society for September 1889, "a study of this author (Marc) illustrates how utterly misleading the term "monomania" is, and how completely and fundamentally authors who do use the term differ as to its meaning."

Happily, the term has now almost entirely fallen into disuse, and in later French writers it is no longer found.

And, with respect to the term "partial" insanity, it has been already pointed out that this term is practically meaningless unless the term "complete" insanity can be exactly defined. If it were to be maintained that the term "partial" insanity was applicable to McNaghten's condition, on account of the evidence given by his father, to the effect that "he spoke rationally enough" on subjects not immediately connected with his delusions, then it would follow that the term might with equal propriety be applied to Hadfield, because of the evidence of the Duke of York, who saw Hadfield immediately after he had fired at the king, and who stated, as we have seen, that the prisoner's "conversation was as perfectly collected as anything could possibly be."

With reference to McNaghten's real condition, the evidence given in 1865, before the Capital Punishment Commission, by Sir Charles Hood, who had had McNaghten under his care for ten years, is noteworthy.† That evidence was to the effect that McNaghten was undoubtedly insane, and that his mind gradually decayed from the ordinary course of brain disease.

Debate in House of Lords.—Very few days elapsed after the trial of McNaghten before the matter became the subject of debate in the House of Lords,‡ and, on the 6th of March, Lord Brougham commenced the discussion by saying that in the event of the Lord Chancellor (Lyndhurst) or the Lord Chief Justice not agreeing that it was necessary to bring

* Marc, "De la folie dans ses rapports avec les questions médico-judiciaires." Paris: Baillière, 1840.

† Capital Punishment Commission, 1865, Questions 2808-2812.

‡ "Hansard," third series, vol. lxvii, p. 288.

in a measure, or make any proposal relative to the law relating to crimes committed by persons alleged to be labouring under *partial* insanity, he should ask their lordships' attention to the subject. The Lord Chancellor said that he had already turned his attention to the subject with a view to remedy the evil. Lord Campbell said that Lord Brougham used the words *partial* insanity, and it might be thought that persons labouring under *partial* insanity were relieved from all responsibility, but this was not the law. "Unless it were proved that insanity existed at the time the act was committed, and that such insanity might be duly considered the immediate cause of the criminal act, there was, at present, no immunity from conviction and punishment."* Lord Brougham explained that what he meant by "*partial* insanity" was more properly expressed by the word *monomania*, and he merely desired to distinguish the state of mind he meant to describe from total and absolute deprivation of reason.

As a further indication of the general feeling of uneasiness, "Hansard" records (vol. lxvii. p. 424) that, on the 7th of March, Sir V. Blake in the House of Commons moved for leave to bring in a Bill to abolish the plea of insanity in cases of murder, or of attempt to murder, except where it can be proved that the person accused was publicly known and reputed to be a maniac, and not afflicted with *partial* insanity only. This motion, however, was not proceeded with.

The discussion was resumed in the House of Lords on the 13th of March, and the report of that discussion ("Hansard," third series, vol. lxvii. pp. 714-744) will well repay perusal. Those who took the chief part in it were the Lord Chancellor; Lord Brougham, who had been Lord Chancellor 1830-34; Lord Cottenham, Lord Chancellor 1836-41, and again 1846-50, and Lord Campbell, who became Lord Chancellor in 1859. On the whole, it would appear that Lords Lyndhurst, Cottingham, and Campbell were of opinion that the verdict in McNaghten's case was right, whilst Lord Brougham maintained the contrary.

In the course of his speech Lord Lyndhurst observed that "those who are acquainted with this subject know how difficult it is to decide to what extent the moral sense and the moral feeling that

* It will be remembered that these conditions were precisely fulfilled in McNaghten's case; and the inference, therefore, is that McNaghten's acquittal was in complete harmony with the law, as propounded by Lord Campbell.

guide men's actions are influenced by delusions." He also said, with reference to the question of the advisability of attempting to frame a precise definition of insanity: "The result would be that your lordships would be satisfied that any attempt at a definition of the particular disease (*insanity*) would be altogether futile, and that the only course we can pursue is to lay down some general and comprehensive rule, and to leave those who administer the laws of the country to apply that rule."

Lord Brougham, on the other hand, referred with approval to the manner in which the law was laid down in Earl Ferrers's case, and said: "If the perpetrator knew what he was doing, if he had taken his precautions to accomplish his purpose, if he knew at the time of doing the desperate act that it was forbidden by the law, that was his test of sanity; he cared not what judge gave another test, he should go to his grave in the belief that it was the real, sound, and consistent test."

Lord Brougham also referred to the case of Jonathan Martin* (whom he had defended) and who was, he said, quite aware that he was safe.

The terms "right" and "wrong," "good" and "evil," "proper" and "wicked" were also keenly and sarcastically criticised by Lord Brougham, who maintained that they could know only one kind of right and wrong—"the right is when you act according to law, and the wrong is when you break it."

Lord Cottenham thought that it was impossible to listen to any doctrine which proposed to punish persons labouring under insane delusions. Their lordships could not mean to say that the man who was incapable of judging between right and wrong, of knowing whether an act were good or bad, ought to be made accountable for his actions. Such a man had not that within him which formed the foundation of accountability either from a moral or legal point of view. It appeared very strange that any persons

* Jonathan Martin was tried at York in 1829 for setting fire to York Minster. He said that he had done it at God's command. He had been an inmate of an asylum on two previous occasions, in 1819 and 1820. Lord Brougham defended him at his trial, and he was acquitted on the ground of insanity, although, in the course of the trial, the medical officer to the York Gaol stated that, in his opinion, the prisoner had capacity to distinguish right from wrong. Lord Brougham evidently implies that, in his opinion, both Martin and McNaghten ought to have been found guilty; and, by the rule for which he contended, a similar verdict must also have been found in the case of Hadfield.

should be labouring under a delusion and yet be aware that it was a delusion; in fact, if they were aware of their state there could be no delusion.

Lord Campbell thought there could be no doubt at all that McNaghten was properly acquitted. At the same time, care was necessary in the use of terms, inasmuch as he had heard Dr. Haslam say, not that there were many who were more or less insane, or that all of us had been insane at some period of our lives, but that we were all insane. He then went on to read and to discuss Sir Matthew Hale's* description of partial insanity, and, in conclusion, he said that "he had looked into all the cases that had occurred since Arnold's case, and, looking to the directions of the judges in the cases of Arnold, of Lord Ferrers, of Bellingham, of Oxford, of Francis, of McNaghten, he must be allowed to say that there was a wide difference, both in meaning and in words, in their description of the law."

Questions put to the Judges.—As a result of this discussion, the House of Lords resolved to put certain questions to the judges. These questions, which were five in number, were as follows:†—

"(1) What is the law respecting alleged crimes committed by persons afflicted with insane delusion in respect of one or more particular subjects or persons: as, for instance, where, at the time of the commission of the alleged crime, the accused knew he was acting contrary to law, but did the act complained of with a view, under the influence of insane delusion, of redressing or revenging some supposed grievance or injury or of producing some supposed public benefit?"

"(2) What are the proper questions to be submitted to the jury when a person afflicted with insane delusion respecting one or more particular subjects or persons is charged with the commission of a crime (murder, for instance), and insanity is set up as a defence?"

"(3) In what terms ought the question to be left to the jury as to the prisoner's state of mind at the time when the act was committed?"

"(4) If a person under an insane delusion as to existing facts commits an offence in consequence thereof, is he thereby excused?"

"(5) Can a medical man, conversant with the disease of insanity, who never saw the prisoner previously to his trial, but who was present during the whole trial and the examination of all the wit-

nesses, be asked his opinion as to the state of the prisoner's mind at the time of the commission of the alleged crime, or his opinion whether the prisoner was conscious at the time of doing the act, that he was acting contrary to law, or whether he was labouring under any and what delusions?"

Answers of the Judges.—The following answers were returned by the majority of the judges. Although the discussion in the House of Lords occurred March 6 and 13, it was not until June 19 that the answers were delivered.

"1. Assuming that your lordships' inquiries are confined to those persons who labour under such partial delusions only, and are not in other respects insane, we are of opinion that, notwithstanding the party accused did the act complained of with a view, under the influence of insane delusion, of redressing or revenging some supposed grievance or injury, or of producing some public benefit, he is nevertheless punishable, according to the nature of the crime committed, if he knew, at the time of committing such crime, that he was acting contrary to law, by which expression we understand your lordships to mean the law of the land.

"2 and 3. As these two questions appear to us to be more conveniently answered together, we have to submit our opinion to be that the jurors ought to be told, in all cases, that every man is to be presumed to be sane, and to possess a sufficient degree of reason to be responsible for his crimes, until the contrary be proved to their satisfaction; and that, to establish a defence on the ground of insanity, it must be clearly proved that at the time of the committing of the act the accused party was labouring under such a defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing; or, if he did know it (*sic*), that he did not know he was doing what was wrong. The mode of putting the latter part of the question to the jury, on these occasions, has generally been whether the accused, at the time of doing the act, knew the difference between right and wrong; which mode, though rarely, if ever, leading to any mistake with the jury, is not, we conceive, so accurate when put generally and in the abstract, as when put with reference to the party's knowledge of right and wrong in respect to the very act with which he is charged. If the question were to be put as to the knowledge of the accused solely and exclusively with reference to the law of the land, it might tend to confound the jury by inducing them to believe that an actual knowledge of the

* *Vide* p. 297 of this article.

† Clark and Fennelly's Reports, vol. x. p. 200, *et seq.*

law of the land was essential in order to lead to a conviction; whereas the law is administered upon the principle that every one must be taken conclusively to know it, without proof that he does know it. If the accused was conscious that the act was one which he ought not to do, and if that act was at the same time contrary to the law of the land, he is punishable; and the usual course, therefore, has been to leave the question to the jury whether the accused had a sufficient degree of reason to know he was doing an act that was wrong; and this course, we think, is correct, accompanied with such observations and explanations as the circumstances of each particular case may require.

"4. The answer must of course depend on the nature of the delusion; but, making the same assumption as we did before—namely, that he labours under such partial delusion only, and is not in other respects insane—we think he must be considered in the same situation as to responsibility as if the facts with respect to which the delusion exists were real. For example, if under the influence of his delusion he supposes another man to be in the act of attempting to take away his life, and he kills that man, as he supposes in self-defence, he would be exempt from punishment. If his delusion was that the deceased had inflicted a serious injury to his character and fortune, and he killed him in revenge for such supposed injury, he would be liable to punishment.

"5. We think the medical man, under the circumstances supposed, cannot in strictness be asked his opinion in the terms stated, because each of those questions involves the determination of the truth of the facts deposed to, which it is for the jury to decide, and the questions are not mere questions upon a matter of science, in which case such evidence is admissible. But where facts are admitted, or not disputed, and the question becomes substantially one of science only, it may be convenient to allow the question to be put in that general form, though the same cannot be insisted on as a matter of right."

The foregoing answers were concurred in by the whole of the judges, with one exception. Mr. Justice Maule, of whom Lord Coleridge has recently written, that he possessed the most extraordinary intellect he ever came across,* gave separate answers. In them he said that he would have been glad if his brethren had joined him in praying to be excused from answering these questions, and he feared that the answers might embarrass the adminis-

tration of justice when they were cited in criminal trials. His lordship's remarks are given at length by Clark and Finnelly,* but we must forbear to do more than quote a sentence from the answer which he gives to the third question. "There are no terms," he says, "which the judge is by law required to use." Mr. Justice Maule was, however, in a minority, and, therefore, whilst his observations and opinions are most instructive, the rules by which the Courts are guided are held to be embodied in the answers to which the other judges agreed.

Commentary.—These answers have given rise to numerous and weighty criticisms by medical writers; and not by medical writers only. Great lawyers have also suggested grave doubts on many points in connection with them. They may be summarised as doubts (1) as to the authority of the answers; (2) as to their scope and exact meaning; and (3) as to their correctness. Passing over the question of the authority of the answers, as being one which more especially pertains to members of the legal profession, and coming to a consideration of the question of their scope, we find, for instance, that the late Lord Chief Justice Cockburn, in a letter on the Criminal Code Bill, which letter was ordered by the House of Commons to be printed on the 6th of June 1879, refers to the answers as if they expressed only so much of the law as was necessary to answer the questions that had been submitted to the judges; whilst, on the other hand, Lord Wensleydale, who, as Mr. Baron Parke, had taken part in the preparation of these answers, spoke of them, in the evidence given by him before the Capital Punishment Commission of 1875 (Question 362), as if he regarded them as embodying the whole of the law on the subject. Who, it may be asked, under these circumstances, shall decide the knotty point? If Lord Wensleydale was right, and if the late Lord Chief Justice was also right in thinking that the questions did not require an exposition of the whole of the law, then we are driven to the conclusion that the learned judges did not conform to the rule, so often impressed upon witnesses, of not going, in their answers, beyond the scope of the questions. But, with respect to this point, it may perhaps be suggested that possibly the late Lord Chief Justice may have been under some misapprehension as to the scope of the questions. Bearing in mind the remarks that were made by

* *Contemporary Review*, June 1890.

* *Op. cit.*, vol. x. p. 204.

Lord Brougham in introducing the subject in the House of Lords, one would expect to find that the questions would have reference to a special set of conditions, and in the first question that expectation is fulfilled. In it, the inquiry is as to the law with respect to a person who commits an alleged crime under the influence of insane delusion, and who at the time of committing such alleged crime knows that he is acting contrary to law. Here we have two special conditions distinctly marked out, and, therefore, this question is clearly limited by those conditions. But then arises the question whether the second and third questions depend, for their interpretation, on the first, or whether they are entirely independent questions. The third question is certainly not sufficiently definite in its terms to stand alone, for if it were regarded as being an independent question there would be nothing to indicate what is meant by the words "the act," whilst, if the third question is regarded as being dependent, for its interpretation on the second, it might equally be held that both the second and third were intended to be dependent on the first, and to be limited by the same conditions.

If we turn to the answers of the judges, it will be at once perceived that the answer to the *first* question is not explicit. The judges preface it by an assumption that the inquiries (not, it will be observed, limiting this assumption to one inquiry) of their lordships "are confined to those persons who labour under such partial delusion only, and are not in other respects insane." It will be remembered that the phrase "partial delusion" does not occur in the question submitted to the judges by the House of Lords, but we have seen, in the report of the McNaghten trial, how this unfortunate phrase came to be introduced. The question, however, as framed by the House of Lords, was free from that complication, and it is a matter for regret that the answer was not equally free.

The question supposes the case of a person who knows, at the very time of the commission of the alleged crime, that he is acting contrary to law, but it supposes that he commits the act under the influence of insane delusion, and it is by no means clear in what way the judges intended it to be understood that their answer would have been affected, supposing that the person were "in other respects insane." The judges are clear in the expression of their opinion that, unless such person were "in other respects insane" he is punishable; but their answer also im-

plies that it would be possible for an accused person who, at the very time of committing an act, knew that that act was contrary to law, to be not punishable, provided he were insane in some respects other than those specified in the question. This is what the answer of the judges appears to imply, and it is, therefore, much to be regretted that, for the sake of the accused, these "other respects" were not clearly and specifically stated.

We have seen what Lord Erskine said, at the trial of Hadfield, with respect to the case of a person who acts under the influence of insane delusions, and what Lord Chief Justice Denman said, at the trial of Oxford, with respect to the case of a person who is "the agent of a controlling disease," and we have also seen what Lord Cottenham said in the House of Lords with respect to "any doctrine which proposed to punish persons labouring under insane delusions," as well as what Lord Campbell said with respect to a state of insanity which "might be duly considered the immediate cause of the criminal act," but whether this answer of the judges agrees, or conflicts, with these opinions of Lord Erskine, of Lord Chief Justice Denman, of Lord Cottenham, and of Lord Campbell is not by any means clear.

Passing on now from the first to the *second* of the questions submitted by the House of Lords, we find that the judges do not accord to this question the honour of a separate answer; but they say that it appears to them to be more convenient to take the third question with the second and to answer them both together.

It is impossible not to regard every word of these answers as being of supreme importance; but the most important passage of all is one which occurs in the answer which we are now considering, and which says, "that, to establish a defence on the ground of insanity, it must be clearly proved that at the time of committing the act the accused was labouring under such a defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing; or, if he did know it (*sic*), that he did not know he was doing what was wrong." And then, later on in the same answer, it is explained that "if the accused was conscious that the act was one which he ought not to do, and if that act was at the same time contrary to the law of the land, he is punishable." Much ingenuity has been expended in attempts to comprehend precisely what the meaning is of the words "nature and quality of the act." Is the "nature" the same thing as the "quality"? If so, why

use two terms when one would suffice? But if the "nature" is not the same thing as the "quality," why refer to both of them by the singular pronoun "it"? Whilst, however, there is great difficulty in interpreting that portion of the passage, there is even greater difficulty with respect to the words which follow.

We have seen that the first of the questions of the House of Lords distinctly formulates the case of a person who, at the time of the commission of the alleged crime, "knew he was acting contrary to law," and the point which is left in doubt, by the answer now under consideration, is this: Did the judges intend to imply that it was quite possible for a person to know that he was acting contrary to law, and yet at the same time, and with respect to the same act, not to know that he was doing what was wrong? We have seen how Lord Brougham in the House of Lords defined what he understood by the terms "right" and "wrong"; but it is by no means clear whether the judges, when they, in their answer, used the term "wrong" used it in the sense for which Lord Brougham contended, or in some other unexplained sense.

With respect to the answer given by the judges to the *fourth* question we may quote a passage from an essay* by Mr. Lancelot Everest, of the Midland Circuit. Mr. Everest says that his "idea respecting this answer is that the judges meant to say that they did not recognise delusions, *quâ* delusions, as any defence at all; that they consequently treated delusions as if they were honest mistakes of fact. The logical result of this would be that a man suffering under a delusion that another man was attempting to kill him, and killing him under that delusion, would be in the same position as a man killing A. under the honest but erroneous impression that A. was attempting his life, and, therefore, would be entitled to a *general acquittal*, and not an acquittal on the ground of insanity, or else he would be treated as a sane man at his trial, and as an insane person after it was over."

The *fifth* and last question raises a point of practice, interesting enough in its way; but consideration of space limits us to one observation—that the question refers only to the permissibility of putting certain questions to a medical man who never saw the prisoner previously to the trial.

The difficulty of determining the precise interpretation to be put upon these rules

* "The Defence of Insanity in Criminal Cases," by Lancelot Feilding Everest, M.A., LL.D., Barrister-at-law, 1887, p. 44.

becomes even more apparent by an examination into the results of their practical working. Lord Bramwell, an authority of the very highest eminence, stated, in his evidence before the Select Committee on the Homicidal Law Amendment Bill, June 25, 1874, that "the present law lays down such a definition of madness that nobody is hardly ever really mad enough to be within it"; and that this was not a hastily formed opinion is clear from the evidence that was previously given by his lordship before the Capital Punishment Commission, on the 29th of November 1864. Now this opinion would appear to indicate that the proportion of accused persons who are found insane by the juries by whom they are tried would be comparatively small, provided the verdicts of the juries were in conformity with the law as laid down in the answers of the judges. But, if we inquire what the actual facts are with respect to this matter, we find an answer in a return made by the Director of Public Prosecutions, and ordered by the House of Commons to be published on the 12th of March 1891. (No. 139.)

In this return, the Director of Public Prosecutions states (page 9) that all charges of murder are brought to his notice, and that he takes charge of the proceedings; and then the report goes on to say: "During the year 1890, the number of such charges, including twelve of child murder, was eighty-four. In seventeen of these, verdicts of wilful murder were returned, and sentences of death were passed. In twenty, verdicts of not guilty were passed. In nineteen, the accused were found to be insane, either before or after trial."

And then the report goes on to give details as to the remainder, who were found guilty of some crime less than murder. But the point to be observed is, that nineteen of these persons were found to be insane, and, if we look at the particulars which are given in the list marked A., we find that no less than sixteen of these were tried in court upon the facts, and were declared to be insane by juries who had all, it must be presumed, been charged by the presiding judges in the terms of the rules laid down in 1843. That is to say that, in 1890, out of the total number of persons charged with the crime of murder and brought into court for trial, the number of those who were declared by the verdicts of the juries to be insane, and who were thereupon ordered to be detained during Her Majesty's pleasure, was almost exactly equal to the number found guilty of

wilful murder and sentenced to death; and this statement, it must be remembered, does not include those who on account of their mental condition were not brought into court to be tried, nor does it include those who were respited after trial and sentence, and, of course, it will not be overlooked that these figures have reference to charges of murder only.

How, then, it may be asked, are these results to be reconciled with the opinion of Lord Bramwell that nobody is hardly ever really mad enough to be within the definition of madness laid down in the judges' answers? Must we conclude that the law, as laid down in those answers, is in reality more elastic than it appears to Lord Bramwell to be, or is there some other explanation?

It must be remembered also that Lord Bramwell not only gives his interpretation of the law, but he goes on to say that, in his opinion, the definition of madness laid down by the law, as he understands it, is a logical and good definition,* and in another place† his lordship says with respect to the law "that it is a right law," "right to demonstration."

But Lord Bramwell is not the only great legal authority who has expressed his opinion on the subject. In the report given‡ of the trial of a man named Pearsall for the murder of his wife, before the Lord Chief Justice of England (Lord Coleridge), it is stated that "his lordship said he considered that judicial decisions on questions of insanity were bound by an old authority, which by the light of modern science was altogether unsound and wrong. The law of England on that subject was contradicted by modern science." And then, later on, Lord Coleridge is reported to have said in summing up this case to the jury: "There was no more painful part of the duty of those who had to administer the law than the matter of insanity. The law which existed upon the subject, and which he was going to lay down to them as law, was not incapable of being so interpreted as to do terrible injustice. His lordship quoted a case in his own experience in which a murderer was unquestionably mad, but was hanged, God forbid that he should say justly, but certainly according to law, and that law was, so far as he knew, still the law of England. The law was administered now, he was most thankful to acknowledge, in a different spirit; but that the law of England remained in terms what it was

in the case of which he spoke, it was his duty to tell them."

A still more recent utterance by the same learned judge may also be cited. In the course of his address to the grand jury at Bodmin on the 27th of February 1891, Lord Coleridge is reported to have thus expressed himself: * "It was said by a legal authority when he was a young man that if a person was found guilty of murder he should be hanged, whether he was sane or not, for if he was sane he deserved it, and if he was mad it was to him no harm. That seemed to him to be a horrible doctrine, and he was glad that it was no longer held."

We may in the next place take note of what another learned judge, Mr. Justice Hawkins, says on this subject. In the *Shrewsbury Chronicle* (Jan. 23, 1885) it is reported that Mr. Justice Hawkins, in his address to the grand jury, called attention to the case of a man named Anthony Ware, who, whilst an inmate of the Bicton Asylum, had killed another inmate. His lordship said that in some respects it was an important case, for one of the points involved was how far a man was to be held responsible for his actions, being a confirmed lunatic. His lordship then described how Ware had killed his victim by striking him repeatedly with an iron bar, and then went on to say that it would be absurd to suppose that any one could say that Ware could be held responsible for his actions, but the law with respect to the responsibility of criminal lunatics appeared to him to be in a very unsatisfactory state, and he must confess that the rules by which the judges had been hitherto guided and which they had thought it right to act upon so as to give uniformity of practice seemed to him hardly to meet such a case as he had just mentioned. His lordship then referred to the rules laid down by the judges, and said he did not suppose there was a man living, lawyer or layman, who would say that this unfortunate man (Ware), who had caused the death of a fellow-creature, was responsible for the act, in the eye of the law, in any sense, and yet, in the face of the evidence, they could not say that he did not know the nature of the act, or that he was doing a wrong act.

And then, later on, his Lordship said he was not speaking his own views only in the matter—the judges generally had expressed similar opinions before—that the whole subject should be reconsidered, and that they should have some better definition of what constituted a defence on the ground of insanity.

* Report of Select Committee on Homicide Law Amendment Bill, Question 186.

† *Nineteenth Century*, Dec. 1885, pp. 894, 899.

‡ *The Worcester Journal*, Feb. 18, 1888.

* *The Western Morning News*, Feb. 28, 1891.

Our limited space compels us to refrain from citing other instances; but the foregoing extracts, from charges which have been delivered to juries within recent years, are sufficient to show how well grounded was the apprehension that was expressed by Mr. Justice Maule that the rules laid down in 1843 might embarrass the administration of justice when cited in criminal trials. It is impossible, however, to omit to refer to the weighty contribution that has been made to the discussion of the subject of the relation of madness to crime by Sir James Fitzjames Stephen in the recent edition of his "History of the Criminal Law of England." But the chapter which this learned writer has devoted to this subject cannot by any possibility be summarised. It must be studied in its entirety by those who are interested in the subject. We may, however, permit ourselves to make one quotation.

In answer to the question, What then is the meaning of a maniac labouring under such a defect of reason that he does not know that he is doing what is wrong? Mr. Justice Stephen writes: "I think that any one would fall within the description in question who was deprived, by disease affecting the mind, of the power of passing a rational judgment on the moral character of the act which he meant to do. Suppose, for instance, that by reason of disease of the brain a man's mind is filled with delusions which, if true, would not justify or excuse his proposed act, but which in themselves are so wild and astonishing as to make it impossible for him to reason about them calmly or to reason calmly on matters connected with them. Suppose, too, that the succession of insane thoughts of one kind and another is so rapid as to confuse him, and, finally, suppose that his will is weakened by his disease, that he is unequal to the effort of calm sustained thought upon any subject, and especially upon subjects connected with his delusion, can he be said to know, or have a capacity of knowing, that the act which he proposes to do is wrong? I should say he could not."*

A more recent utterance from the bench may be taken in conjunction with the foregoing passage. At the trial for murder of a man named David Davies, at the Glamorganshire Spring Assizes, in 1888, Mr. Justice Stephen is reported† in the course of his charge to the jury to have spoken as follows: "I wish, if pos-

sible, to show you what the law is in regard to cases of this kind, more for the sake of giving general information on the subject than for its particular application to this case. It is an opinion held by a certain number of medical men in respect to the law obtaining in these cases that it is unreasonable and unjust. I do not desire to enter into the merits of the dispute, except so far as to express myself sorry that such a difference of opinion should exist between the two great professions, the medical and legal professions. It is said that, according to the law, a man is responsible for his acts when he knows that the act is wrong, and that is true. Now medical men frequently say that many persons who are really mad do know that the act is wrong. Now, if you will exercise your judgment in the matter, you will probably see that knowing the act is wrong means nothing more or less than the power of thinking about it the same as a sane man would think about it; the power of attaining to a full conception of the horrible guilt there would be in murder; the power of knowing that you are doing that which will destroy life and your soul, and cause sorrow and terror and every kind of frightful consequence; the power of thinking about all this—that power which every sane man possesses. That is the law, as I understand it, which, by guilt, implies the power of discriminating between right and wrong; that is the test of responsibility. You have heard this poor man's condition described. How could he know whether the act was right or wrong? In a fit of epilepsy he did not, could not consider it, would not know what he was doing, would not know anything at all about it. He would do it as a matter of course, just as in a physical convulsion he would throw his arms violently about. I say this, lay down these principles in order to remove, if possible, a misconception between two great professions, for one of which I have the highest possible respect, and, as for the other, the fact that I have the honour to belong to it is an assurance that I respect it."

One more extract from a charge delivered by the same learned judge may be quoted. At the trial of a man, named William Burt, at the Norwich Assizes, on the 9th of November 1885, on a charge of feloniously causing grievous bodily harm, the report, given in the local paper,* states that Mr. Justice Stephen having explained the state of the law as to what constituted irresponsible action, added "that if a man were in a state of passionate

* "Hist. Crim. Law of England," Stephen, vol. ii. p. 163.

† *The Western Mail*, March 15, 1888.

* *The Norfolk Chronicle and Norwich Gazette*.

rage, excited by disease, which violently interfered with his actions, so that he had not a fair capacity to weigh what he was doing, or to know that his act was wrong, he was not responsible. They had not to consider whether a man had a particular disease, but whether his conduct was, in itself, sane; and whether he acted from ordinary wicked motives or under the influence of disease. In this case there seemed to be a mixture of motive. The prisoner was jealous, and he also suffered from epileptic fits, which produced mad, causeless violence. But if a man acted partly from a common motive and partly from a disease, he (his lordship) suggested it was for a humane jury to give the man the benefit of the doubt and take into consideration whether they would not have him taken care of instead of subjecting him to punishment. If there was epileptic fury and insanity mixing with ordinary resentment and causeless jealousy, and a man acted from both motives, his lordship thought the general spirit of the law and its administration suggested that the prisoner should have the benefit of any doubt which arose." The jury found the prisoner insane.

The foregoing extracts, from charges delivered by judges whilst engaged in the actual administration of the law, indicate, with sufficient clearness, that the difficulties which are felt by medical men on this subject, are not felt by them alone, but are shared by occupants of the judicial bench. Many similar extracts might be cited; and some others, bearing upon another branch of the same subject, will be found in an article under the head of PLEAD (*q.v.*); but the following instance, showing, as it does, the manner in which, sometimes, a very short road out of the difficulty is taken, must not be omitted.

A man, named Brocklehurst, was tried at the Cheshire Assizes* in October 1884, before Mr. Justice Cave, on a charge of feloniously wounding his wife; and, in the course of the trial, evidence was given to the effect that the accused had been an inmate of the County Lunatic Asylum, from April to July of that year; and that, after his return home, although at first he appeared to be pretty well, he afterwards became strange in his manner, and unable to sleep at night, and began to accuse his wife of putting something in his food for the purpose of poisoning him, and also of being unfaithful. Under the influence of these delusions, he attacked his wife with a coal scraper, and after-

wards he said that he had done what he wanted, and that he meant to go to the gallows, indicating, by that remark, that he was clearly aware of the illegality of his act.

Mr. Grosvenor, counsel for the prosecution, was about to address the jury on the subject of the prisoner's insanity, when his lordship interposed with the remark that the doctor had said distinctly that the prisoner was of unsound mind. Mr. Grosvenor suggested, however, that the question for the jury was whether the prisoner was capable of appreciating the difference between right and wrong. But to this his Lordship replied, "No; the question is whether he was insane at the time; and if a man is suffering from the delusion that his wife tries to poison him, and is unfaithful, and he attacks her with a scraper in consequence, it is as clear as anything can be that the man is mad."

To the jury: "Do you feel any difficulty about it, gentlemen?"

The Foreman: "Not the slightest."

His Lordship: "It is as clear as can be."

The jury found that the prisoner was guilty of feloniously wounding, but that he was insane at the time he committed the act; and his lordship ordered him to be detained during Her Majesty's pleasure.

In this case it will be seen that the discussion as to whether the prisoner appreciated the difference between right and wrong was somewhat summarily disposed of; but it is worth noting that the prisoner thought he had done an act for which he would be sent to the gallows; and it did not, apparently, occur to him that the fact of his having been an inmate of an asylum, only a short time before, would make any difference with regard to that matter; so that, in his case, the anticipation of punishment was not absent from his mind at the time of the commission of the act.

Lord Blackburn, in the course of the evidence given by him before the Select Committee on the Homicide Law Amendment Bill,* in the year 1874, explained to the Committee the manner in which he had, on one occasion, surmounted the difficulty that is created by the terms of the judges' answers.

After giving the particulars of the case of a poor woman who had been tried by him on a charge of attempted murder, his lordship went on to say:—"She clearly

* The *Macclesfield Courier and Herald*, Nov. 1, 1884.

* Report ordered by the House of Commons to be printed July 21, 1874, Question 276.

knew right from wrong, and knew the character of her act." . . . "On the definition in McNaghten's case, she did know right from wrong. She did not (*sic**) know the quality of her act, and was quite aware of what she had done; but I felt it impossible to say that she should be punished. If I had read the definition in McNaghten's case, and said, 'Do you bring her within that?' the jury would have taken the bit in their own teeth, and said, 'Not guilty, on the ground of insanity.' I did not do that; I told them that there were exceptional cases, and, on that, the jury found her not guilty, on the ground of insanity, and I think rightly."

Here, then, was a case in which Lord Blackburn felt it impossible to say that the accused should be punished; although he was clearly of opinion that the rules laid down in 1843 by the judges, would, if strictly applied, have held her to be punishable; and, therefore, his lordship escaped from the difficulty by telling the jury that there were exceptional cases. The poor woman was, unquestionably, insane, and was justly acquitted on that ground; but it must be added that, in reality, there was nothing very exceptional in her case. She had been insane on a former occasion, and, when she became aware of symptoms which warned her that her malady was returning, she made up her mind to kill the child, so that it might not be a burden to her husband whilst she was away at the asylum. She knew, in one sense, that she was doing wrong, but she thought it right to do wrong; and if this explanation is not regarded as being reasonable, it must be remembered that it is impossible to give sane reasons for insane acts.

It not infrequently happens that insane persons write letters before the commission of intended acts, and that, in such letters, they describe, as well as they know how, their reasons for the acts. In one letter of this description, a woman, who drowned three of her children, and who had intended to drown herself, writes thus:†—

"My very dear husband,—You have been a good hard-working husband to me, and a good father to your children. It will be hard work for you when you know what I have done, and all for nothing. The reason I have taken your dear children is because I thought they would be better off, than for me to leave them here

in this world of trouble. So, don't, husband, don't fret, for I am not worthy of your fretting about. May God bless you and comfort you. I hope you will be a friend to my dear mother, for she has been so good to me. I hope you will let Sarah Ellen have my boots and my work-box, and my clothes be given to Ann Priscilla and Hannah for the money they have lent me. Dear husband, I never thought I should come to this once. It is all because I cannot work and do as I wish." . . . "Oh, bless you, my dear husband. Don't fret for me. Everybody has been good to me, more than I deserve."

This letter was written before the poor woman killed her children; and then, after writing it, the writer told her neighbour that she was going to make some purchases, and she took her children with her to a canal, where she drowned three of them, but she was prevented from carrying out her intention to also drown herself.

Looking at the terms of her letter, it would be impossible to say that this poor woman did not know that the act she was about to commit was contrary to law; but then she thought it would be better to kill the children than to leave them "in this world of trouble"—a world in which, as the writer acknowledged, everybody had been good to her.

It might be suggested, possibly, that, in this case, also, the poor woman thought it right to commit an act that was contrary to law; but this method of surmounting the difficulty requires to be fully explained in order to render it consistent with the express statement that "if the accused was conscious that the act was one which he ought not to do, and if that act was, at the same time, contrary to the law of the land, he is punishable." The fact that the writer of the foregoing letter told her neighbour that she was going to make some purchases would indicate that she was conscious that the act was one that she ought not to do; whilst, on the other hand, the reason which she assigned, in her letter, for the commission of the act might be held sufficient to prove that she thought it was right to commit the act. But it is evident that this explanation is one which requires great care in applying it. A mother might think it right to steal food for a starving child. A man might think it right to revenge an injury. A thief, even, might think it right to redress the unequal distribution of wealth.

Although, however, Lord Blackburn's case does not appear to have been, in reality, an exceptional case, we must not

* The word "not" appears in the Report, but the context indicates that this is an error.

† The *Macclesfield Courier and Herald*, June 9, 1883.

lose sight of the fact that it was so regarded by his lordship; and, in whatever way it may be looked at, it serves as an additional proof to show how well grounded was the apprehension expressed by Mr. Justice Maule that the answers of the judges "might embarrass the administration of justice when they are cited in criminal trials."

It must not, however, be inferred, from the foregoing instances, that juries are never, at the present day, charged strictly in conformity with the McNaghten rules, in the sense in which they are understood and interpreted by Lord Bramwell. Numerous instances might be cited in which the charges delivered from the judicial bench have followed, as they have unquestionably a perfect right to follow, the precise words of the rules: and then sometimes it happens that the juries do what Lord Blackburn speaks of as taking the bit in their teeth; whilst, in other cases, the juries obey the directions given to them; and then, further, it sometimes happens, when the jury has taken the latter course, that the learned judge, who has tried the case, himself suggests to the Secretary of State that there is ground for thinking that the prisoner was suffering from mental disease.

The case of Henry Cullam,* which is cited in the art. PLEAD (*q.v.*), illustrates another course which a case may take. In that case, the prisoner pleaded guilty; and then his own counsel, Mr. Forrest Fulton, explained that he did not interfere with that plea, because it was extremely difficult to ask a jury to come to the conclusion that, at the time of the commission of the crime, the prisoner did not know the difference between right and wrong. Documents, relating to the mental condition of the prisoner, were, however, handed up to the learned judge, who, after reading them, expressed the opinion that it would be the best course for the documents to be forwarded to the Secretary of State, and for the matter to be left in his hands. This course was, accordingly, taken, with the result that the prisoner was sent to the asylum for criminal lunatics.

It will be gathered from this, and from similar cases, that courts of law are by no means unwilling to leave difficult cases of insanity in the hands of the Secretary of State. And, with reference to this point, the Royal Commissioners, appointed to consider the Criminal Code Bill, state, in their Report:† "We are of opinion that the difficulty cannot be successfully avoided by any definition of insanity

which would be both safe and practicable, and that many cases must occur which cannot be satisfactorily dealt with otherwise than by such an appeal."

The Royal Commissioners, it will be observed, state their opinion that the difficulty could not be avoided by any safe definition; and it might be inferred, from this, that it is the definition which creates the difficulty, or, rather, perhaps, one ought to say, that it is the assumed necessity for having a definition which creates it. In the various discussions which have taken place, it would appear to have been generally assumed that it would be impossible to interfere with the rules that were laid down in 1843, until some other perfectly satisfactory rules could be substituted for them. The alternative course of rescinding the existing rules, so as to leave the Courts free to apply the general principles of the common law to the altered circumstances of the times, does not appear to have received the consideration that it deserves; and yet we have seen what Lord Lyndhurst said as to the difficulty and danger of attempting to frame a definition; and the advice which Mr. Justice Maule proffered on this subject. More recently, too, Lord Blackburn,* in the evidence given by him, in 1874, has said: "I can only say that on the question what amounts to insanity, that would prevent a person being punishable or not, I have read every definition which I ever could meet with, and never was satisfied with one of them, and have endeavoured in vain to make one satisfactory to myself; I verily believe it is not in human power to do it. You must take it that, in every individual case, you must look at the circumstances and do the best you can to say whether it was the disease of the mind which was the cause of the crime or the party's criminal will."

If we consider the circumstances under which the answers were wrung from the judges in 1843, if we remember how agitated the public mind was at that time in consequence of the tragic death of Mr. Drummond, it might well be conceded that rules so given to the world were scarcely likely to be of a character to be binding upon all posterity.

Indeed, on three separate occasions, since the year 1843, the question of the state of the law, as to the nature and degree of insanity which is held to relieve the accused from penal responsibility, in criminal cases, has been the subject of anxious deliberation; namely, in 1865, by the Royal Commissioners appointed to

* *Hertfordshire Standard*, August 4, 1888.

† Report, 1879 (c. 2345), page 17.

* Report of Committee on Homicide Law Amendment, 1874, Question 274.

inquire into the provisions and operations of the law under which the punishment of death was, at that time, inflicted, in the United Kingdom; secondly, in 1874, by the Select Committee, to which the Homicide Law Amendment Bill was referred; and, thirdly, in 1879, by the Royal Commissioners to whom the Criminal Code Bill was referred. But, although, in the Reports made by these Commissioners, the subject was declared to be a very difficult one, and also to be a subject requiring further investigation, no definite action has yet been taken; and, therefore, the existing law is still held, at the present time, to be embodied in the answers that were returned by the judges in the year 1843.

We have seen to what an extent the inception of the rules was due to the commanding influence of Lord Brougham; but we know that the rule laid down in a cognate matter in the case of *Waring v. Waring*, by that great Chancellor, is now no longer law, and therefore it may possibly not be deemed altogether too bold a proposal to suggest that the McNaghten rules might now be laid decorously at rest by the side of the rule in *Waring v. Waring*.

It is, no doubt, sometimes urged that unless juries were restrained by absolutely strict definitions they would have an irresistible tendency to go wrong, but are we quite certain of this, and might we not rather expect that in a matter of this sort juries would give expression to the conscience of the age?

It would be going beyond the scope of the present article to attempt to give an account of the laws of other countries; but, for a full summary of the present state of the question in America, the reader is referred to a paper by Clark Bell, Esq., in the number of the *Medico-Legal Journal** for November 1888, entitled, "Judicial Departure in Insanity Cases"; whilst a large amount of most valuable and interesting information, as to the laws and modes of procedure of continental countries, will be found in an exhaustive report,† presented to the French Senate, in 1884, by Dr. Théophile Roussel, on behalf of a Commission appointed to examine a Bill for the Amendment of the Lunacy Laws of France.

In **conclusion**, then, it must be remem-

* *Medico-Legal Journal*, published at 57, Broadway, New York, vol. vi., No. 2, p. 139.

† "Rapport fait au nom de la commission chargée d'examiner le projet de loi portant révision de la loi du 30 Juin, 1838, sur les Aliénés, par M. Théophile Roussel, Sénateur." Paris, P. Mouillot, Imprimeur du Sénat, 1884.

bered that, in a criminal court, the term responsibility means liability to legal punishment. "It is," says Mr. Justice Stephen,* "common to discuss this subject as if the law itself depended upon the result of discussions as to the freedom of the will, the origin of moral distinctions, and the nature of conscience. Such discussions cannot be altogether avoided, but in legal inquiries they ought to be noticed principally in order to show that the law does not depend upon them."

The judges, in their answers in the year 1843, addressed themselves entirely to the question of whether or not an accused person was "punishable."

In the next place, it is to be observed that the statute law of England lays down detailed regulations† for the care and custody of persons who are declared by courts of law to be not liable to legal punishment by reason of insanity; and, in the foregoing pages, the rules have been stated which the Courts have, from time to time, laid down, to guide themselves in determining the question of the degree of insanity which renders a person not liable to legal punishment.

With respect to the rules that were made in 1843, we have seen how open they are to criticism, but we must not forget that they are still in force, and, being in force, it is, doubtless, the duty of counsel to examine witnesses in strict conformity with their terms. A witness so examined might, however, without any disrespect to the Court, ask that the terms of the questions put to him should be precisely explained, so that, before answering, he might know clearly the exact sense and import of the questions.

In a general sense, a person may be said to be insane so as not to be liable to legal punishment: (1) When his mental condition is such as to render him unfit for penal discipline; or, (2) When, in the words of Lord Blackburn, disease of the mind was the cause of the crime; or when, in the words of Mr. Justice Stephen, the accused "was deprived by disease affecting the mind of the power of passing a rational judgment on the moral character of the act which he meant to do."

Bearing in mind the remark attributed to Dr. Haslam by Lord Campbell, to the effect that all men are insane, it is obviously necessary that the term insane should be qualified; and in the matter now under consideration the qualifying words are, "so as not to be liable to legal punishment."

In mixed cases, like that of William

* *Op. cit.*, vol. ii. p. 66.

† 23 & 24 Vict. c. 75; and 47 & 48 Vict. c. 64.

Burt, before mentioned, who was tried before Mr. Justice Stephen at Norwich in November 1885, the right course is to ascertain as fully as possible the whole of the facts, and to lay them all before the Court, together with such inferences as the circumstances and facts appear to warrant.

Crime is, in many cases, traceable to degeneration, and to physical conditions similar to those associated with insanity. There may be both criminality and insanity co-existing, and combined in an infinite variety of proportions; and every case should be approached with the object of making the best diagnosis possible.

For an account of the measures that are now taken for the purpose of insuring, if possible, that, in cases of suspected insanity, all the information available as to the mental condition of the accused is brought before the Court, the reader is referred to the article on PROCEDURE.

W. ORANGE.

CRIMINALS, Brains of.—It is a great mistake to imagine that our results obtained by the study of the brains of criminals have been refuted by Giacomini.

It has been said that the results of general and comparative anatomy which we have represented in the course of these studies belong exclusively to the brains of criminals. Really the study of exceptional brains has not only proved that the schemes hitherto generally recognised are not suitable for the representation of individual brains, but has also taught us that all the little tertiary anonymous fissures are nothing more than the relics of morphological conditions found in other classes of animals.

On the strength of these studies we can make the proposition that there exists a large series between the type of brains with separated fissures and another type in which all the fissures are more or less confluent, and that the excess of this latter type must be considered as an exceptional condition with the value of a stigma.

Not only is the number of confluences characteristic, but principally *certain* ones which are in opposition to the typical conformation of the genus *homo sapiens*. Such confluences are—*e.g.*, that of the calloso-marginal fissure with the forked fissure of the occiput; the confluence of the latter with the collateral fissure, especially when the latter fissure extends throughout the middle basilar lobe. Another atypical confluence is that of the parieto-occipital fissure—through both “*plis de passage externes*”—with the temporal fissure; and of like import is

the confluence of the central fissure with the first frontal fissure, &c.

In the same way the confluence of the *fissura frontalis externa*, which separates the surface of the frontal lobe from the orbital lobe, with the *fissura fossæ Sylvii* is atypical and represents the *præ-Sylvian* fissure of beasts. Also certain separations of fissures whose confluence is typical in man, have the value of a stigma—*e.g.*, the separation of the vertical part of the forked occipital fissure from the other parts by the first “*pli de passage interne*” becoming superficial; and further, the separation of the *fissura calcarina* from the other parts of the “fork” when the second “*pli de passage interne*” becomes superficial. Also the condition where the cerebellum is not covered by the brain seems to me to be a certain stigma.

We know that a great number of brains of “great” and “professional” criminals are endowed with stigmata (1) by excessive development of subordinate as well as of principal fissures, (2) by an excessive confluence of fissures. This confluence may be direct by elongations of the principal fissures or by their anastomoses through the great development of subordinate fissures which connect these first. (3) A series of such brains is characterised as stigmatised either by special confluences as named before, or by separations of confluences, when the one or the other condition is in opposition to the human type.

The stigmata have no special connection with crime; one finds the same upon brains of epileptics, those congenitally insane, &c. They prove only individual inferiority and divergence from type. We are sure that a critical study of specimens will support these propositions.

MORITZ BENEDIKT.

CRISES (*κρίσις*, decision). If the doctrine of crises in mental disorders is not regarded at the present day as of much importance, no one would deny the fact intended to be recognised by the word. Esquirol was fond of the term. “Has not insanity,” he asks, “its causes, its symptoms, and its course, which are peculiar to it? Why not regard it as we do other diseases? Recovery is only certain when it has been indicated by a certain perceptible crisis. When the attack ceases suddenly, without being able to attribute it to a critical cause, it is to be feared that it will be proved to be a case of intermittent insanity. If mental disease is so apt to become chronic, it is because the crises are rarely complete, and often miscarry. . . . Crises are physical or moral; they only occur in monomania, melancholia, mania,

mental stupor; they cannot occur in imbecility and dementia." ("Maladies Mentales," vol. i. p. 81.)

CRISPATION (F. *crisper*, to shrivel; from *crispo*, I curl). A term sometimes used as a synonym for the Fidgets (*q.v.*)

CROUP, HYSTERIC (Lowland Sc. *croup*, from A.-S. *krōpan*, to cry aloud). A term for hysterical cough accompanied by a croupy sound and paroxysms of dyspnoea. (See HYSTERIA.)

CRUCIFIEMENT. (See HYSTERICAL OPISTHOTONOS.)

CRY, EPILEPTIC (F. *crier*, from L. *quiritō*, I raise a plaintive cry, I implore the aid of the Quirites. Some look upon it as an onomatopoeitic word; *ἐπιληψίς*, a seizure). A peculiar discordant cry or yell occasionally uttered just before the respiration is arrested in an epileptic fit; sometimes it partakes more of the character of a groan. It is due probably to a narrowing of the glottis at the moment when air is expelled from the chest by tonic spasm. The patient is, as a rule, not aware of the cry, but sometimes he can hear and remember it although he cannot prevent it. It occurs once only.

CRYPTORCHIDISM or **CRYPTORCHISMUS** (*κρύπτω*, I conceal; *ἄρχις*, a testicle). Terms for the condition in which the testicles have not descended into the scrotum, but remain in the abdomen. It is found in some forms of idiocy.

CURABILITY OF INSANITY, THE.

—The endeavour to ascertain even the approximate curability of insanity is accompanied by difficulties, and the investigator is soon thrown upon the results of its treatment at the special institutions as his chief resource in the search for truth. Nor are the difficulties wholly overcome by the adoption of those results. In very many cases, through the affection or the prejudices of friends, or from other causes, the patient is not removed to a hospital until the prospect of recovery is either wholly or partially lost; and for reasons of a similar nature, he is but too frequently removed therefrom without a sufficient test of his curability.

Another obstacle to the discovery and definite expression of the actual susceptibility of cure of the disease, is found in the temperaments of the physicians by whom they are treated. There being no test for insanity, there can be no general standard equally perceptible by, and equally forcible to, the minds of all men. As a necessary consequence each physician adopts a standard of his own and counts his recoveries accordingly.

American hospitals furnish two remarkable instances of the effect of this "per-

sonal equation." At the Worcester (Mass.) Hospital, during the last three entire official years of the administration of Dr. Bemis, the reported recoveries were 43.32 per cent. of the admissions; and during the first three entire years of his successor, Dr. Eastman, they were only 22.16 per cent. of the admissions. At the McLean Asylum, during the last seven years of the superintendence of Dr. Tyler, the reported recoveries were 44.19 per cent. of the admissions, whereas during the first seven years of his successor, Dr. Jelly, they were only 19.94 per cent. The proportion of Dr. Tyler's recoveries was to those of Dr. Jelly as 221 to 100. In neither of these instances was there any known agency which tended to render insanity less curable in the second period than in the first.

The failure, formerly, in the reports of the lunatic hospitals clearly to discriminate between *persons* and *patients* (or *cases*) was the source of no inconsiderable error in the minds of the readers of those reports. In cases of paroxysmal or recurrent insanity, a person is frequently both admitted to, and discharged recovered from, a hospital more than once in the course of an official year. In the numerical report of these recoveries there is no intimation that the number of persons is not equal to that of recoveries. At the Bloomingdale Asylum, New York, a woman was discharged recovered six times, and one at the Worcester Hospital seven times in one year; and in neither instance was the reader informed that the number of persons was not identical with that of cases recovered. Recoveries are also multiplied by the reported cures of the same person in more than one year. Thus, the woman who, at Worcester, made seven recoveries in one year, had been discharged recovered nine times within the next two preceding years, making sixteen recoveries in the three years; and the woman who, at Bloomingdale, recovered six times in one year, was reported recovered forty-six times in the course of her life, and finally died, a raving maniac, in the asylum.

At five American asylums forty persons were reported recovered four hundred and eighty-four times, or an average of a fraction more than ten recoveries for each person.

The records of American hospitals contain the medical history of three women who were admitted as patients an aggregate of one hundred and eighteen times, and were discharged recovered one hundred and two times, and yet two of them died insane, and the third, when last

heard from, had found a home apparently for life, in an almshouse.

By new statistical tables, adopted in Massachusetts in 1879, and by the British Medico-Psychological Society in 1881, the true number of *persons*, as well as of *cases*, recovered is shown in each annual report. Hitherto, no American State, other than Massachusetts, has adopted those tables.

The admission, at a large proportion of the institutions, of cases of not only delirium tremens and the opium habit, but alcoholism and even *mere habitual inebriety*, and, upon their discharge, reporting them as recovered, vitiates the statistics of those institutions to an important extent, giving an *apparent* but fictitious curability to insanity. The published statistics of the disease include thousands of "recoveries" of this kind.

A few facts from medical history will show the method by which the popular mind, particularly in America, heretofore received the impression that insanity is largely curable.

In the year 1820 Dr. George Man Burrows, of London, published his "Inquiry into certain Errors relative to Insanity," in which he states that, of all the cases (296) treated by him, the proportion of recoveries was 81 in 100; of recent cases 91 in 100; of old cases 35 in 100.

The appendix to the "Inquiry" contained the statistics of the Retreat at York, from 1796 to 1819. The ratio of recoveries of all those cases which were of less than three months' duration was 85.1 per cent.

The report for 1827 of the Retreat at Hartford, Conn., says: "During the last year there have been admitted 23 recent cases, of which 21 recovered, a number equivalent to 91.3 per cent."

In January 1833 Massachusetts opened her first State Hospital, at Worcester, under the charge of Dr. Samuel B. Woodward, who was one of the original directors of the Hartford Retreat. In his second annual report, which was for the official year 1833-34, he states that the recoveries during that year were 82.25 per cent. of all the recent cases discharged. He classed as recent cases all whose origin was within one year prior to admission; and this method was followed generally at the American hospitals. So, also, was the practice of calculating the percentage of recoveries upon the number of patients discharged.

When the Worcester Hospital was opened there were but eight other public institutions in the United States specially devoted to the care of the insane; but within the ten next succeeding years

no less than twelve new institutions were added to their number. With the reported success of Dr. Woodward and the other high ratios of recovery already mentioned before them, a generous spirit of rivalry to show the largest percentage of cures was soon manifested among the medical superintendents. For the official year 1840-41 Dr. Woodward reported 90 per cent. of recoveries of recent cases discharged, and in the next following year 91.42 per cent. In 1842 Dr. Galt, of the Williamsburg (Virginia) Asylum, claimed the recovery of 12 out of 13 recent cases. This was a percentage of 92.3. One of the 13 died, and of this the doctor very naively says: "If we deduct this case from those under treatment the recoveries amount to 100 per cent." At length, in his report for 1843, Dr. Awl, of the Columbus (Ohio) Asylum, stated that the percentage of recoveries of recent cases discharged in that year was 100. This was the *ne plus ultra*.

The same year, Dr. Luther V. Bell, of the McLean Asylum, in reviewing all his cases—"somewhat exceeding a thousand," to that time, says that of those cases whose duration was less than six months, "certainly nine-tenths have recovered."*

The inevitable and obvious result of all these publications of high ratios of recovery, was to give the impression to the public mind that mental disease is far more susceptible of cure than, from facts now known, it is shown to be. Their influence was not without its effect upon the British superintendents, as is indicated by the language of Dr. W. A. F. Browne, who states that the American success "excited the envy and despair of my confrères and myself."

Believing that, with regard to the subject before us, the best method of showing what *can be* done is to show what *has been* done, we proceed to mention some of the most important and reliable statistics which now illustrate the curability of insanity.

Dr. John Thurnam traced the history until death of 244 persons treated at the York Retreat, and, generalising from these data, formulated the following rule: "In round numbers, of ten persons attacked by insanity, five recover and five die, sooner or later, during the attack. Of the five who recover, not more than two remain well during the rest of their lives; the other three sustain subsequent

* The effect of fourteen years' additional experience upon Dr. Bell's opinion is apparent from the fact that in 1857 he said to one of his friends, "I have come to the conclusion that when a man once becomes insane he is about used up for this world."

attacks, during which at least two of them die."

In 1858 the number of persons admitted into the asylums of Scotland was 1297. Twelve years afterwards Sir Arthur Mitchell traced their history, as far as practicable, to that date, and in January 1877 published the results in the *Journal of Mental Science*. Of 1096 persons whose history was traced, 454 had died insane, and 367 still lived insane—total 821 insane; while 78 had died not insane, and 197 still lived not insane—total 275 not insane. Percentage of insane, 74.91; percentage not insane, 25.9. In general terms, three-fourths were insane and one-fourth not insane. The final results in regard to these patients will probably very nearly agree with those of the 244 at the York Retreat.

In 1843 Dr. Woodward published a list of 25 recent cases recovered, contrasting the cost of their treatment with that of the treatment of 25 chronic cases then in the hospital. Thirty-six years afterwards, in 1879, the present writer traced the history of those patients to that time, and found the results somewhat more unfavourable than those of the 244 at York. Agreeably to Thurnam's rule, 10 of the 25 should never have a second attack; the remaining 15 should have a second attack, and perhaps more, and of those 15, 10 should die insane. The actual results were as follows: Only 7 of the patients did not have a second attack; while 18 did have a second attack or more. Seven had died insane, while 2 others were in almshouses, having long been incurably insane—and will of course die so—and 1 has died at home who "was never well (sane) but a few months at a time." Eight of the 25 were living in 1879, and there was more than a mere probability that some of them would die insane.

In 1883 the present writer collated the cases of duration on admission of less than twelve months—the recent cases of Americans—from the reports of several years of twenty-three British asylums. The aggregate of admissions was 15,697; of recoveries, 7465. Proportion of recoveries, 47.49 per cent.

In the *Journal of Mental Science* for July 1884, Dr. T. A. Chapman, of the Hereford Asylum, published the collected statistics of "forty-six English County and Borough Asylums, and the Edinburgh and Glasgow Royal Asylums, for (in most instances) eleven years—1872 to 1882, inclusive." Here is a collocation of the remarkable number of 93,443 cases of insanity, all of them classified as in Thurnam's table. The whole number of

recoveries was 35,468, or 37.95 per cent. of the admissions. Of the cases of less than twelve months' duration, there were 69,983, of which the recoveries were 32,569, or 46.52 per cent. The cases of first attack and of less than three months' duration were 38,283, of which 18,654, or 48.72 per cent., recovered.

The 5 instances of remarkably high ratios of recovery, which were so effective in producing a public impression of a large degree of curability of insanity, those of Dr. Burrows, the York Retreat, the Hartford Retreat, the Worcester Hospital, and the Williamsburg (Virginia) Asylum, were all of them derived from the treatment of an aggregate of only 395 cases. In the light thrown upon the subject by Chapman's 93,443 cases, those 5 high ratios most signally fail as an authority from which to deduce a general rule of curability.

The following summary includes the results of some of the present writer's statistical researches which have not been mentioned in this article:

1. *Cases of first attack; duration less than three months.*
 - (a) Earle's 8316 cases, at twenty-three British asylums; recoveries, 46.71 per cent.
 - (b) Chapman's 38,283 cases, at forty-six British asylums; recoveries, 48.72 per cent.
2. *Cases of first attack; duration less than twelve months.*
 - (a) Earle's 10,929 cases, at twenty-three British asylums; recoveries, 44.06 per cent.
 - (b) Chapman's 50,409 cases, at forty-six British asylums; recoveries, 43.79 per cent.
3. *Not first attack; duration less than twelve months.*
 - (a) Earle's 4768 cases, at twenty-three British asylums; recoveries, 55.37 per cent.
 - (b) Chapman's 19,574 cases, at forty-six British asylums; recoveries, 53.61 per cent.
4. *All cases of duration less than twelve months.*
 - (a) Earle's 15,697 cases, at twenty-three British asylums; recoveries, 47.49 per cent.
 - (b) Chapman's 69,983 cases, at forty-six British asylums; recoveries, 46.52 per cent.
 - (c) Earle's 8063 cases, at fifteen American institutions; recoveries, 38.59 per cent.
5. *All recoveries; calculated on all admissions.*
 - (a) Chapman's 93,443 cases, at forty-

- six British asylums; recoveries, 37.95 per cent.
- (b) Earle's 33,318 cases, at thirty-nine American institutions; recoveries, 29.15 per cent.
- (c) Earle's 23,052 cases, third period of five years, 1880-1884, at twenty American institutions; recoveries, 29.91 per cent.
- (d) Earle's 14,372 cases, in one year, at fifty-eight American institutions; recoveries, 27.88 per cent.

It appears from these statistics that the reported recoveries at the British institutions exceed those at the American by from 8 to 9 per cent. of the admissions.

PLINY EARLE.

CURATORY OF THE INSANE (see articles on COGNITION, and SCOTLAND, LUNACY LAW IN).—The chief points of interest in connection with this important branch of Scotch law may be stated as follows:—

The **procedure** is by petition to the Junior Lord Ordinary of the Court of Session. Application may also (1880) be made in the Sheriff Court, when the estate in question does not exceed £100 a year (43 & 44 Vict. c. 4, s. 4), a very important addition to the law. The procedure is on precisely the same lines as in the higher Court.

Who may apply.—A petition for the appointment of a *curator bonis* may be presented by (a) any near relative (*Bryce*, 1828, 3 W. & S. 323), failing whom, any party having interest (*Mason*, 1852, 14 D. 761); (b) the alleged lunatic himself, if sufficiently capable to understand the effect of his doing so (*Swan*, 1853, 2 Stuart, 284); (c) the Lord Advocate (20 & 21 Vict. c. 71, s. 81).

Circumstances that justify Application.—The same condition of mind as that defined by 31 & 32 Vict. c. 100, s. 101, for purposes of *cognition (q.v.)* will justify an application for the appointment of a curator. Incapacity arising from *physical* causes (which cognition is incompetent to deal with) has in several cases* been protected by curatory; but there must be urgent necessity to warrant such an application (*Kirkpatrick*, 1853, 15 D. 735; *Mackie*, 1866, 5 Macph. 60).

Evidence to be produced along with the Petition.—An applicant for the appointment of a *curator bonis* must produce certificates by two medical men on soul and conscience, containing the following particulars: (1) the date when the alleged lunatic was seen and examined; (2) the

fact, the cause, and the probable duration of the incapacity; and (3) a statement that he is incapable of managing his affairs (*Robertson*, 1853, 16 D. 317; *Laidlaw*, 1846, 8 D. 426; *The Lord Advocate*, June 24, 1860, 22 D. 555).

Service of the Petition.—The petition must be served on the alleged lunatic. In addition to this, it is usual to order intimation of the petition to be made on the walls, and in the minute book, of the Court, and to require any parties intending to oppose the application to lodge answers to the petition within a fixed number of days.

Appointment of the Curator.—If the Court considers the case a suitable one, a curator is appointed, subject to the condition of his finding *caution*, or security, the amount of which varies according to the value of the lunatic's estate.

Duties and Powers of the Curator.—The curator, after finding caution, enters on the duties of his office. He gives up an inventory of the lunatic's estate, and renders annual accounts in respect thereof, to the accountant of Court, under whose supervision he acts. In the event of the curator requiring any *special* powers of dealing with the lunatic's estate, he may apply therefor to the Court of Session; and the required powers will be granted, if the application is, in the opinion of the Court, a proper and necessary one.

Close of the Curatory.—On the death or recovery of his ward, the *curator bonis* may obtain a discharge by application to the Court appointing him.

The main provisions regulating the office of *curator bonis* are contained in the Pupils Protection Act of 1849 (12 & 13 Vict. c. 51), and the relative Acts of Sederunt.

A. WOOD RENTON.

[References.—Mackay's Pract. ii. 374. Fraser on Parent and Child, 543. Thoms on Judicial Factors, 276. Bell's Dictionary, 537.]

CUTANEOUS DISEASES. (See SYMPATHETIC INSANITY.)

CUTUBUTH (Arab). A name for a species of melancholia with extreme restlessness.

CYNANTHROPIA (κύων, a dog; ἄνθρωπος, a man). A term for a particular form of insanity in which the patient fancies himself changed into a dog, and imitates its bark, actions, and habits.

CYNANTHROPOS (κύων; ἄνθρωπος), one who suffers from cynanthropia.

CYNIC SPASM (κυνικός, dog-like, from κύων, a dog). A convulsive contraction of the facial muscles of one side, so as to draw towards each other the angle of the mouth and the outer canthus of the eye, the teeth being shown in the manner of

* Mark, 1845, 7 D. 882; Allan, 1852, 14 D. 1009.

an angry dog. The reader should refer to Darwin's "Expression of the Emotions in Man and Animals," p. 118. (Fr. *spasme cynique*; Ger. *Hundskrampf*).

CYNICISM, MORBID (κυνικός, dog-like, from κύων, a dog; morbus, disease). An insane contempt for what others value; insane moroseness and bitterness of spirit.

CYNOLISSA or **CYNOLYSSA** (κύων, a dog; λύσσα, madness). An old term for canine madness, hydrophobia or rabies canina (Castellus).

CYNOPHOBIA (κύων, a dog; φόβος, fear). A term applied to the semi-hysterical symptoms which are produced by the bite

of a healthy dog in a nervous person. Pseudo-hydrophobia.

CYNOREXIA (κύων, a dog; ὄρεξις, a longing). An old term for canine appetite or Bulimia (*q.v.*). (Fr. *cynorexie*; *faim canine*; Ger. *Hundshunger*.)

CYRTOSIS CRETINISMUS (κύρτωσις, the act of making crooked or bent; cretin) Mason Good's term for Cretinism. He employed the term Cyrtosis for any contortion of the bones with bulkiness of the head, and shortness of stature.

CYTHEROMANIA (Κυθήρεια, the surname of Aphrodite or Venus; μανία, madness). A synonym of Nymphomania.

D

DACRYGELOSIS (δακρύγελος, smiling through tears; from δάκρυν, a tear; γέλω, I laugh). A name given to a form of insanity in which the patient alternately weeps and laughs immoderately.

DAEMMERZUSTAENDE PSYCHISCHE. — Mental Confusion. Consciousness of time and space, in relation to the individual, is obscured. Perception of the outer world is dim as if a veil was interposed. The memory of the impression received during this condition is one of fog. German alienists apply the term to that state which occurs between attacks of epilepsy which rapidly succeed one another, as also to the post-epileptic state. It is also employed to describe the temporary obscuration of consciousness which happens in *petit mal*; and again mental states occurring in the course of chronic alcoholism. Somewhat allied to this condition is the dream-like state often observed in very absent people (Traumzustand des wachen Lebens). In fact it may denote a very slight confusion of consciousness up to the point of loss of sense of personal identity, involving irresponsibility in the eye of the law. Sensory reaction to external stimuli no longer involves apperception. This psychical twilight resembles a dream, with this difference, that the psycho-motor sphere is no longer inhibited as in sleep, and confused ideas and hallucinations caused by the internal excitement may become motives or dreaming-like acts, unaccompanied by consciousness, and not remembered afterwards. To this condition belong certain states of delirium from inanition, fever state of acute pathological intoxication, forms of epileptoid disturbance of consciousness and somnambulism. Stupor and ecstasy (Verzückung)

are allied disorders of consciousness (Summary of Krafft-Ebing's description in his "Lehrbuch der Psychiatrie," Bd. i. p. 102).

DÆMONIA (δαίμων, a divinity, spirit, or devil). A synonym of Dæmonomania (*q.v.*).

DÆMONIAC (δαίμων, a spirit or devil). One "possessed," or violently mad.

DÆMONOMANIA (δαίμων, a spirit or devil; μανία, madness). A name given to a species of insanity in which the patient imagines himself to be possessed by evil spirits or devils. This condition is usually found in melancholiacs with perverted religious views. (See **DÆMONOMANIA**.)

DÆMONO-MELANCHOLIA (δαίμων, a spirit or devil; melancholia), **DÆMON-OPATHIA** (δαίμων, a spirit; πάθος, suffering). Synonyms of Dæmonomania.

DANCE, ST. GUY'S. A name given in France to some of the epidemics of the dancing mania.

DANCE, ST. JOHN'S. A synonym of Dancing Mania (*q.v.*)

DANCE, ST. VITUS'S. (See **CHOREA, SANCTI VITII**.)

DANCING MANIA. (Fr. *Dansomanie*.) (See **CHOROMANIA, EPIDEMIC INSANITY, &c.**)

DATURA-STRAMONIUM (Stramoine Solanées). Causes a condition called Daturism. The mind is affected. Until the eighteenth century it was called "Endormie," the sorcerers' herb, in consequence of the use which they made of it to induce hallucinations in their victims. According to Christophe A. Costa (French translation, 1602), "He who swallows the powdered seeds of Datura remains for a long time in the condition of a madman, laughing, weeping, but sometimes chatting with another person and replying to

him as if he was in his right senses, although he is not so, as he does not recognise those who speak to him and does not remember his own discourse when he recovers his reason."

M. Labbée records his own experience after taking *Datura-stramonium*. Half an hour afterwards there was intoxication with the sense of well-being, excitement, disposition to move about and disorder of vision. Three hours later there were visual hallucinations, the appearance of spiders' webs on the bread, the wine which was upset seeming to spread like waves over the table. The mental powers were weakened; flames appeared to burst forth; men, ill-favoured and aggressive, came in view. M. Labbée, affrighted, escaped and concealed himself. The terrific visions were accompanied by menacing voices. This state lasted for twelve hours. He then recovered, the memory being intact.

Trousseau describes the effect of this drug in a moderate dose as causing a slight inclination to sleep, while a large dose causes vertigo, general weakness, slight stupor followed by restlessness, furious delirium, and obstinate insomnia.

In addition to furious maniacal attacks, in which the patient vociferates, bites, and tears everything to shreds (the delirium is rarely mirthful), there may be convulsions, partial paralysis, anæsthesia, and lastly coma.

In this and other respects *stramonium* acts very similarly to *belladonna*, causing great vascular excitement, elevation of temperature, hurried breathing, a parched throat, widely dilated pupils, &c. The alkaloid of *Datura* appears to be isomeric, if not identical with the alkaloid of *belladonna*.

DAYMARE.—A condition of great temporary mental terror or distress, arising without apparent cause, or from very slight causes in a person in a state of wakefulness.

DEAF-DUMBNESS.—A term applied to aphonia arising from deafness either congenital or happening during infancy, but see article *infra*. (Fr. *surdi-mutisme*; Ger. *Taubstummheit*.)

DEAF-DUMBNESS. — **Description.** Dumbness is not infrequently met with among children and adults who hear perfectly well, but who, from some congenital lesion or some accidental occurrence in early life, are destitute of the power of converting ideas into words, or even have no connected ideas to formulate. Their absence of speech is not in consequence of defective hearing, and their intellectual condition makes them less amenable to the

ordinary modes of deaf and dumb teaching. Moreover, their incomplete brain power is often associated with physical deviations such as high arched palates, prognathous jaws and large tongues, as well as defective innervation resulting in inco-ordinated movements of the tongue, which renders speech difficult of attainment.

It may, however, be judged that in cases where there is no intellectual lesion or physical deviation, such as those referred to, the absence of speech is the consequence of defective hearing producing that condition called deaf-mutism. The absence of hearing giving rise to dumbness may be congenital, or the patient may have become deaf subsequent to birth. It is important to bear in mind that it is not necessary that he should have been born with or have acquired in early years *complete* deafness. A small amount of deafness will result in dumbness. Inability to hear the human voice at from two to three feet distance will eventuate in dumbness and will require special teaching in order to acquire speech. Complete deafness is therefore not essential for the production of complete dumbness.

There are some who possess partial hearing power associated with defective speech, and for them it has been suggested that advantage should be taken of their imperfect hearing power to endeavour to teach them by ear-trumpets or other mechanical contrivances, and while there are some valid reasons in favour of such a process, we are of opinion that it is better in their case to adopt the oral method, hereafter to be described, than the aural plan to which we have alluded.

Ætiology.—The cause of congenital deaf-dumbness has been referred mainly to the influence of the intermarriage of deaf mutes or to that of consanguineous marriages. In addition to the two causes referred to, deafness arises from the physical ill-health of the progenitors—the existence of struma or the disturbed nutritive life of the embryo. Sixty per cent. of all existing deaf mutes are congenital, while the remaining 40 per cent. may be attributed to causes operating after birth. There can be no doubt that the intermarriage of deaf mutes is a thing to be strongly reprobated, and this is one of the attendant evils of collecting a large number of both sexes in institutions where undesirable attachments may grow up. It is not free from peril for a person who, although not a deaf mute himself, has brothers or sisters so affected, to marry a person, not a deaf mute, who has deaf mute relatives. On the other hand, people

whose deafness is accidental, provided they have no deaf mute relatives, may without risk marry those who are accidentally deaf but free from family taint. Moreover, it has been shown that a congenital or accidental deaf mute may marry without risk, provided he has no deaf mute relations, a person with perfect hearing, provided he, too, has no deaf mute relatives. Mr. Graham Bell points out that with one parent who is a congenitally deaf mute one-tenth of the children are deaf, and with both parents congenitally deaf mutes about one-third are born deaf.

The intermarriage of relations as a cause of deaf-mutism is more open to dispute. There is a great tendency to rush to conclusions not based on a careful analysis of the cases and without sufficient regard to the physical health of the progenitors. We have taken much pains to investigate the influence of the intermarriage of blood relations in the production of idiocy, and are convinced that it is a factor to which too much importance is given, and an investigation into the statistics relating to deaf-mutism, has suggested a strong probability that there has been wanting sufficient information about the life-history of the cousins whose intermarriage has been followed by the propagation of congenitally deaf mutes. Our inquiries have shown that the intermarriage of blood relations is potent for evil, only by virtue of its accentuating the existence of two factors, whose influence would be productive of bad results even were there no relationship in the matter. Certainly marriages between blood relations should be discouraged with all the force of authority where deafness has occurred in the family, but they should be discouraged with equal force where there is a history of scrofula, phthisis, epilepsy, insanity, or any other hereditary lesion which is known to have a degenerative influence on the progeny. While Duvay contends "that in pure consanguinity isolated from all circumstances of hereditary disease, resides *ipso facto* a principle of organic vitiation," Gilbert Child asserts that "marriages of blood relations have no tendency *per se* to produce degeneration of race." We cannot but believe that the latter statement is nearer the truth, and regard the statement of Mr. Graham Bell as consonant with our own views when he says: "We have no statistics that undeniably prove that a consanguineous marriage is a cause of deafness, but I do see abundant proof that a consanguineous marriage occurring in a family in which there is already deafness, increases the deafness in the offspring; it is simply a case of selection, the

family peculiarities, whatever they may be, are increased."

The causes of non-congenital or accidental deafness are those which give rise to inflammatory affection of the middle ear; probably the most prolific source is scarlet fever, when the throat affection has a tendency to extend thither through the Eustachian tube. Only slightly less influential are meningitis and measles, while continued and intermittent fevers, catarrhs, falls, abscesses, small pox, erysipelas, bring their contingents. Many of these affections entail, without complete deafness, sufficient dulness of hearing to cause dumbness to the child. It is interesting to notice that, as in idiocy so in deaf-mutism, syphilis is a very unimportant factor. It is important to remark that the number of cases of deaf-mutism is becoming proportionally less to the population, a gratifying result of the early and successful treatment of some of the causes which tend to non-congenital or accidental deaf-mutism. There is reason to fear that, if for any reason, vaccination becomes less practised variola would assume a more important place in the production of deaf-mutism. There is a very great difference in the result between cases which have lost their hearing after the acquisition of speech and those where the lesion has been anterior to such acquisition. There is no doubt that the employment of speech is an important factor in the intellectual development of the individual and that the future of the child is influenced favourably thereby.

Treatment.—Great divergence exists both in theory and practice as to the treatment of deaf-mutism. For many years the practice in England was to teach by signs or by manual exercises. Latterly, attention has been given to the practice introduced from Germany where the plan is to teach articulate speech by an imitation of the movements of the lips and organs of phonation, or the oral method. In addition there is also practised the combined system.

There is reason to believe that where deaf-mutism is associated with defective mental vigour the sign-plan of education is the most available. Signs are of two kinds, natural and artificial. The natural signs are such as occur in the simple gestures, facial expressions, dramatic emphasis or pantomime. The artificial signs are purely conventional, and of these there are several codes.

The manual system has been largely adopted and it is acquired and practised by deaf mutes with great adroitness. The different positions of the fingers

represent letters of the alphabet. There are two systems of manual speech practised, the two-handed alphabet, in use generally in England, and the one-handed alphabet, which is adopted in America. The oral system is, however, gradually supplanting the sign and manual systems, and we are strongly of opinion that it is the system which should be encouraged. In Germany we have witnessed the success of the plan and it has of late years extended to Italy and France. The success of the oral system depends in a large measure on its being taught to quite young children, six years of age is the best time to commence. It has been very well said that the oral system not only consists in teaching pupils speech, but in teaching them to comprehend speech. This system is specially valuable to the cases who are partially deaf, but not too deaf to acquire language naturally and also to those who have spoken before they became deaf; so great has been the success in oral teaching that deaf-mutism has become a misnomer.

The combined system is one that has been practised in England, but it has the great disadvantage that children will acquire the sign and manual system, because it is easier, to the neglect of the oral system: moreover, there is reason to believe that sign-language militates against the precision of ideas when practised with lip language. We are of opinion that the oral system should be taught first, and, when education is finished, the sign and manual system may be engrafted on it. It is much to be desired that a larger number of teachers should devote themselves to the work of the oral instruction of deaf mutes. Although great difference of opinion exists as to the extent to which the combined system should be practised, there can be no doubt that the great consensus of opinion among those who have observed the different systems untrammelled by traditional prejudice is, that the future will witness the increased practice of the oral system as the best means of alleviating a distressing condition of a large number of our race. Already the pure oral system is spreading in different parts of England. The higher education of deaf mutes is being prosecuted with good results in America, and where the pupils are taught orally it is obvious that they are in an improved position, being able to take advantage of ordinary college courses.

J. LANGDON DOWN.

DEAF-MUTISM.—Congenital hardness of hearing, due either to imperfect development or disease of the auditory organs.

DEAFNESS AND INSANITY.—In the first place congenital deafness, as is well known, is associated with dumbness, and unless special education is adopted there is certainty of more or less pronounced mental weakness. Deaf and dumb children without special education have to be classed among the imbeciles, but beyond this, though education of a special kind may have been followed, yet it is not uncommon to meet with mental disorder connected in one way or another with deafness; thus, a young deaf man who had been taught deaf and dumb manual expression, and was sufficiently educated to act as a clerk in a general business, gradually developed ideas of suspicion and persecution, so that he had to be sent to an asylum, from which he was discharged unsecured, and has remained ever since permanently deluded.

Cases in which deafness is associated with morbid self-consciousness are to be looked upon as similar in almost every way to the cases of morbid self-consciousness associated with physical deformity. It seems that deaf people, whether the deafness be congenital or acquired, have a tendency to appropriate to themselves suggestions and acts which are in no way intended for them, and that thus an unhealthy state of self-analysis and self-consciousness arises. In some of these cases the tendency is to shun society, in others it is to revenge itself upon those who are supposed to be persecutors or slanderers. It is not uncommon to meet with patients who are deaf, suspicious and given to impulsive acts of violence.

Deafness may be associated with some diseased condition of the external or middle ear, and may, in some cases, be amenable to treatment, so that the result of collections of wax, or of Eustachian tube disease may not only be deafness but hallucination of hearing; and several cases have come under observation in which removal of the obstructing material has relieved both the deafness and the hallucinations. It is also noteworthy that in one case hallucinations of hearing were removed by the use of Politzer's bag. In some cases the hallucinations resemble illusions and are comparable to similar disordered conditions met with in the other senses. Thus, in optic neuritis, partial blindness has been met with, associated with confused ideas and hallucinations of sight. One man of a suspicious habit of mind, who had optic neuritis and believed that he was being watched and interfered with by the persons who surrounded him, whom he mistook for men whom he knew to be unfriendly disposed towards him.

Deafness may be one-sided, associated with one-sided cortical lesion.

Deafness may be one-sided and associated with hysterical symptoms. It has often been pointed out that in hysteria of the graver forms there may be hemi-anæsthesia, also hemi-chromatopsia and, similarly, there may be half deafness, and this may be associated with confusion of thought and general mental disorder.

Probably, the most interesting relationships of deafness to mental disorder are met with in a special group of cases to which we shall now more particularly allude. These patients are mostly middle-aged persons, chiefly women who, without any very definite cause, are noticed to be changing in habits and disposition. They shun their old friends and haunts, they give up occupations to which they were attached, and altogether become morbidly solitary and self-contained. At the same time, it is noticed that they are becoming deaf, the deafness being of both ears and of a not very marked or extreme degree. Soon the symptoms above mentioned become so evident that the patients have to be controlled. These patients are generally restless at night, frequently getting up, searching their room or rooms adjoining, going into the kitchens or cellars, or at other times changing their lodgings frequently or making accusations against neighbours, and in consequence of supposed slanderous remarks which by some peculiar means are made against them. The deafness and the hallucinations of hearing seem to develop equally, and in the end a fully formed delirium of persecution arises, and it is necessary for the sake of the patient as well as for the sake of the friends that he should be secluded. This group of cases has not, to our thinking, been sufficiently recognised. They are almost always incurable, and the disorder after attaining a certain pitch persists with variable intensity for the rest of a long asylum life.

Deafness may give rise to morbid self-consciousness, to insane suspicion, to the idea that false accusations are being made, or that the thoughts are being read or influenced, or that some people have special power to influence and affect the individual and it may also lead directly or indirectly to ideas of grandeur. The person who does not hear contradictions to his or her statements may gradually come to believe that he is never wrong. In a few cases deafness, especially associated with advancing years, has in our experience been associated with profound melancholia, and suicidal attempts have been made by men who either believed that they were

becoming useless to their friends and a load upon society, or who believed that slanders were being propagated against them.

GEO. H. SAVAGE.

DEAFNESS, HYSTERICAL. (See HYSTERIA.) An affection sometimes found in severe cases of hysteria, in which hysterical hemi-anæsthesia is well marked. It may, however, also occur in both ears in varying intensity and without apparent disease. It may suddenly disappear or be supplanted by other hysterical symptoms. The loss is usually greater for sounds conducted through the cranial bones than for those conducted through the air; the auditory nerve also loses its normal sensitiveness to electrical stimulation.

DEAFNESS FOR WORDS. (See WORD-DEAFNESS.)

DEATH, APPARENT (*appareo*, I simulate or cause to appear). A term applied to an extreme form of trance in which the breathing, the heart's action, the corporeal warmth, and other manifestations of life are so feeble as to reduce the person to the similitude of a corpse. This condition may last for some hours; it is of rare occurrence and usually associated with hysteria. (See NARCOLEPSY, and TRANCE.)

DEATH-RATE. (See STATISTICS.)

DEATH TRANCE.—Another term for extreme trance, apparent death (*q.v.*).

DEBILITAS ANIMI (*debilito*, I weaken; *animus*, the mind). Weakness of mind or intellect. A synonym of Imbecility.

DEBILITAS ERETHISICA (*debilito*; *ἐρεθίζω*, I excite). A morbid irritability of temper and disposition.

DEBILITAS MEMORIÆ (*debilito*; *memoria*, memory). Defect or weakness or want of memory.

DEBILITAS NERVOSA (*debilito*; *nervosus*, nervous). A synonym of Neurasthenia.

DECIDENTIA (*decido*, I fall down). Literally a falling down. Formerly used as a synonym of Cataptosis or Epilepsy.

DECUBITUS ACUTUS (*decumbo*, I lie down; *acutus*, sharp, violent). The rapidly advancing form of sloughing bed-sores which occurs in general paralysis and other cerebral diseases. It commences on the region of greatest pressure, generally on the sacral and gluteal regions, but also on the elbows and heels, by an erythematous redness, on which blisters rapidly rise, and which soon becomes gangrenous. It also occurs on paralysed parts, generally within a short time of the exacerbation of central nerve lesion. (See BED-SORE.)

DECUBITUS, FORCED (*decumbo*).

An old term for the tying down of a delirious or insane patient on a bed by means of bandages or sheets.

DEFECTIO ANIMI (*defectio*, from *deficio*, I lack or fail; *animus*, the mind). Mental deficiency. A synonym of another old term, *Deliquium Animi*. (Fr. *défaillance*; Ger. *Ohnmacht*.)

DEFINITION OF INSANITY.—

Dr. Conolly exposes the superficial definition of insanity given by Cullen—namely, that it is an impairment of the judging faculty. “This,” his critic observes, “was only a substitution of another name for the same thing.” Conolly’s own definition was “the impairment of any one or more of the faculties of the mind, accompanied with, or inducing, a defect in the comparing faculty”—a definition infinitely superior to that of Cullen, although it must be confessed it does not include certain purely emotional acts, in which the faculty referred to remains quite unaffected. Pages might be filled with the attempts of psychological writers to compress the multitudinous phases of mental disease under one rigid formula. It must be admitted that the result shows the difficulty of restricting morbid mental phenomena to one Procrustean bed. The definer has indeed too often proved himself to be a “Tyrant more cruel than Procrustes old, Who to his iron-bed by torture fits,” all the many-sided symptoms of insanity.

The conclusion to which a consideration of this subject leads is this, that there is a conventional employment of the word insanity or unsoundness of mind, which differs from a scientific use of the term. Thus, he who wanders in the delirium of a feverish attack is for the time being of unsound mind from a strictly medical point of view, but he is not technically insane. The same is true of the person who is under the influence of the “insane root which takes the captive prisoner,” but no one regards him as of unsound mind. It is obvious, therefore, that the practical definition of that which has come to be regarded as “insanity” will not be co-extensive with the range of mental aberration produced by a variety of causes—in other words, the definition we are constrained to adopt is a narrow and exclusive one. It is this: A disease of the brain (idiopathic or sympathetic) affecting the integrity of the mind, whether marked by intellectual or emotional disorder. It must be understood that disease comprises *defect*. So understood, the definition includes idiocy—in short, it covers the area of congenital as

well as acquired cerebro-mental disorder.

Too much stress has been laid in most definitions on the absence of pyrexia and upon chronicity; when these conditions are demanded, not a few undisputed cases of insanity are excluded. Another mistake has been made in requiring the patient’s “unconsciousness of the disease” to be an essential element of the definition. The instances are by no means few in which he is most painfully conscious of the disease under which he labours. Then comes the question, Shall the definition of insanity include irresponsibility? The answer is that there is a **medical** and a **forensic** use of the word, and that, if the latter aspect of the disease is contemplated, it is necessary to add to the foregoing definition that the disorder is such as to suspend, or to impair, the action of the healthy will. Whether the extent of will-impairment can practically influence the amount of punishment accorded to the criminal lunatic is a very difficult question, and one not considered in this place. (See CRIMINAL RESPONSIBILITY.)

In a court of law no mental expert will be induced, if he be wise and regardful of his reputation, to give a definition of insanity. A considerate judge, one really as well as nominally “learned,” may be expected to address him to the same effect as we have heard Lord Chief Justice Coleridge address a witness, when requested by counsel to define insanity, “I suppose you do not consider that that is possible, seeing that it assumes so many forms.”

There are, however, certain *legal* definitions with which it is desirable to be acquainted:

Lunatics.—This term is defined by 8 & 9 Vict., c. 100, s. 94, to mean “Every insane person, and every person being an idiot or lunatic, or of unsound mind.” (See 16 & 17 Vict. c. 39.)

Blackstone’s definition is as follows:—“A lunatic, or *non compos mentis*, is one who hath had understanding, but by disease, grief, or other accident hath lost the use of his reason. A lunatic is, indeed, properly one that hath had lucid intervals; sometimes enjoying his senses, sometimes not, and that frequently depending upon the changes of the moon.” Coke, who regarded the phrase *non compos mentis* as the most legal term, included under it not only lunatics, but persons under frenzies—*i.e.*, who lose their intellect by disease—also those who become deaf, dumb, blind; and, indeed, any who from whatever cause the Court of Chancery considered incapable of conducting their own affairs.

An idiot, or natural fool, falls within the

category. Even the drunkard, so long as he is deprived of his memory and understanding, is included, but without obtaining any privilege by this voluntary contracted madness.

Unsound Mind.—Although this term is to be found in some statutes as equivalent to insanity, Lord Eldon seems to have attached a greater latitude to the signification of these words.

They imported, he said, that the party was *in some such state* as was contradistinguished from idocy and lunacy, and yet such as made him a proper subject of a commission to inquire of idiocy and lunacy; and accordingly, if a jury find a party to be of unsound mind and incapable of managing his affairs, it is held a sufficient finding to support a commission of lunacy.

Partial Insanity signifies in law that a person is insane on one or more particular subjects only, and sane in other respects. This was admitted by Lord Hale (1 Hale's P.C. 30).

THE EDITOR.

DEGENERATION.—**Definition.**—A diseased deviation from a primitive type. However simple in its origin, it includes the elements of transmissibility of such a nature that the contained germ becomes more and more unable to fulfil its function in humanity. Such is the definition given in the remarkable work by M. Morel, entitled *Traité des Dégénérescences* (1857).

Ætiology.—The object is to trace the origin and formation of diseased varieties in the human species. The causes of degeneration had never before Morel been clearly enunciated—heredity, intoxication, want, certain articles of diet, miasma, the geological constitution of the soil, &c.

Symptoms.—M. Legrain has more recently drawn special attention to the signs of physical and mental degeneration. He substitutes the term *folie des dégénérés* for that of *folie héréditaire*. According to him, it presents three aspects—a mental, a syndromic, and an insane state.

The *mental* state includes four degrees or stages—idiocy, imbecility, mental weakness, and the superior or comparatively intelligent form of degeneration.

The *syndromata* displace the old conception of monomanias as so many morbid entities. They are signs, or, as Magnan terms them, *stigmates psychiques*, of mental degeneration. On analysis he finds that each may be reduced to one of two phenomena—obsession or impulse—that is to say, they are at the bottom of every monomania. Obsession is to thought what impulse is to action. Although the impulse logically follows obsession, it may, and frequently does, occur independently.

The *irresistibility* of obsession or impulse, the complete *lucidity* of mind, and the accompanying *agony*—these three form a *toute ensemble* or syndrome of this group.

There are three factors—instability of the intellect, that of feeling, and more or less paralysis of the will—which go to constitute the mental state of the degenerated.

An example of the *insane** state, the consciousness of the morbid symptoms being no longer retained, is moral insanity.

Among the physical and mental signs of the low forms of degeneration are the following:—

Physical.—Arrest of development of a bodily organ; misshapen skull; marked asymmetry; microcephalus, hydrocephalus, prow-shaped forehead; strabismus; oval pupils, with the long diameter converging towards the root of the nose (Legrain); peculiar form of ear (*q.v.*); high and narrow palate; irregular and imperfect teeth; pigeon-breast; rachitis; abnormal development of mammary glands in man; hermaphroditism, or other abnormal development of sexual organs.

Mental.—General want of harmony between volition and the instincts; instability; excess or deficiency of emotional sensibility; obtuseness; slow mental development; defects of speech; all stages of mental weakness down to idiocy.

The mental condition of the highest form of the degenerated is consistent with great intelligence. Persons of this class are capable of vast conceptions; their imagination knows no bounds. Their judgment may bear the impress of great correctness, but they are generally deficient in logic; they are fond of paradox and contradiction. They announce the purest principles, but never put them in practice; theory with them presents the most astonishing contrast to their daily lives. . . . In spite of their brilliant sentiments, it is impossible to count upon or to take them seriously. Their will is feeble, and many satisfy their passions by excesses of all kinds, which they deplore in theory, but which they are incapable of effectively controlling. (Legrain.) In short, this class are intelligent, but they are in a condition of disequilibrium; they are “degenerated,” in consequence of the tendencies which they have inherited from their ancestors.

The reader must be on his guard not to confound the “degeneration” of Morel

* *État delirant*, which conveys a different sense from “insane state.” It excludes idiocy, and obsession and impulse accompanied with consciousness of the peculiar mental conditions present.

with that of the *délire* or *folie des dégénérés* of Magnan and Legrain. They are by no means synonymous, as the foregoing description shows. There seems to be a danger of employing the term degeneration in so comprehensive a sense as to comprise forms of mental disorder under one head which differ widely in their form, their prognosis, and their treatment. Again, the term must not be allowed to convey the impression that the condition of the patient is necessarily downwards, for this is by no means the case, recovery frequently taking place in some divisions of the group.

THE EDITOR.

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DEGRADATION, SENILE (*degradior*, I descend; from *de*, down, and *gradus*, a step; *senilis*, old). The gradual physiological failure of the mental and bodily powers due to old age.

DEHUMANISATION (*de*, from; *humanus*, belonging to a man). The mental and physical degradation which takes place in many insane persons, especially chronic maniacs and melancholiacs, by which they are brought, as it were, to the level of beasts.

DEJECTIO ANIMI (*dejectio*, I throw down; *animus*, the mind). A term for lowness of spirits. Melancholy. (Ger. *Niedergeschlagenheit*.)

DEJECTION (*dejectio*, from *dejectus*, cast down). Lowness of spirits; temporary depression of the mind, Melancholy (*q.v.*)

DELIQUIUM ANIMI (*deliquium*; from *delinquo*, I fail; *animus*, the mind). A failing, want, or defect of the mind. A synonym of *Defectio Animi*.

DELIRAMENTUM (*deliro*, I am insane; from *de*, from, and *lira*, a furrow; literally, I deviate from the ordinary course, as in ploughing: some derive the different forms of the word from *λίπος*, foolish talk, with the prefix *de* to intensify the term). Delirium.

DELIRATIO (*deliratio*, a going out of the furrow; from *deliro*: see *DELIRAMENTUM*). An old term for madness, delirium.

DELIRATIO SENUM (*deliro*; *senex*, old). Senile insanity of any form. Also used as a synonym of *Dotage*.

DÉLIRE.—French term not only for delirium, but mania and monomania.

DÉLIRE AIGU.—The French term for acute mania.

DÉLIRE ALCOOLIQUE, DÉLIRE CRAPULEUX.—French terms for Delirium tremens or Acute alcoholic delirium.

DÉLIRE AMBITIEUX.—Grandiose delusions with outbursts of maniacal excitement, observed in general paralysis of the insane, and other forms of insanity.

DÉLIRE DÉPRESSIF.—The French equivalent for melancholia.

DÉLIRE DES GRANDEURS.—The French term for the monomania of grandeur.

DÉLIRE DES PERSÉCUTIONS.—The French term for the insanity of persecution.

DÉLIRE DU TOUCHER.—The French term for a form of insanity the chief developmental symptom of which consists in touching objects or persons.

DÉLIRE EN PARTIE DOUBLE (F.) A synonym of *Folie à deux*.

DÉLIRE TREMBLANT.—A French term for Delirium tremens.

DÉLIRE VESANIQUE.—The French term for Madness, Insanity.

DELIRIA.—A synonym of Insanity.

DELIRIOUS (*deliro*: see *DELIRAMENTUM*). Being in a state of delirium.

DELIRIUM (*deliro*, I rave; from *de*, from, and *lira*, a furrow: see *DELIRAMENTUM*). A perversion of mental processes, the perversion being manifested in speech or action. The disturbance is characterised by incoherent speech, hallucinations, illusions and delusions, restlessness, watchfulness, apparently purposeless actions, inability to fix the attention. The condition is essentially the same as that which constitutes insanity, but it is confined to the acute mental perturbation which occurs as a direct consequence of certain cerebral conditions—*e.g.*, organic brain disease (tumours, multiple or extensive softening and multiple degenerations), pyrexia (meningitis, cerebritis, acute specific fevers, &c.), toxæmic states (alcoholic, septicæmic, and other poisoning), inanition, &c. Delirium may consist purely of delusions with visual hallucinations and low monotonous muttering, when it is known as “quiet delirium,” or the same condition, combined with actions the outcome of such delusions, is known as “active delirium.” (See article, *infra*).

DELIRIUM.—Definition.—Delirium in a general sense implies disorder of

the mind, and according to this definition the term is equivalent to insanity. The expression is used however in a much more limited sense, being made to signify that temporary disturbance which occurs in connection with other diseases, generally of a febrile kind; it therefore excludes the chronic mental affections which are usually included under the term insanity. Delirium may be taken as meaning that disorder of the intellect commonly called light-headedness, which is usually symptomatic of many diseases. These in a large majority of cases are of a febrile kind, though sometimes they are of a chronic visceral nature affecting the constitution of the blood; more rarely the delirium may be primary and dependent directly upon the brain, as in meningitis; or when the cerebrum is atrophied or otherwise impaired, as in delirium tremens; sometimes it arises from the introduction of poisons into the system.

It will be as well to state at the outset that the delirium of febrile diseases must not be confounded with the mental disturbance which is occasionally met with in those affections after the acute symptoms have passed. Ordinary delirium occurs at the very beginning of the fever, whereas this subsequent disturbance takes place when the fever is over. Attention was first directed to this latter form by Griesinger, who had observed that mental aberration sometimes occurs after the subsidence of acute disease. We have ourselves witnessed it after pneumonia, pleurisy, typhoid and scarlatina. The patient has perhaps no febrile delirium or very little, but after the subsidence of this as well as the other acute symptoms he becomes maniacal in the ordinary sense of the term, talking incoherently, not knowing his friends and acting in every way as a lunatic. It may be a question whether this maniacal state, as well as the degree of febrile delirium, arises from any predisposition to mental disturbance. The late Dr. Addison used to teach that the delirium in typhoid fever depended very much upon the temperament of the patient, and in the case of a little boy whose delirium was excessive and prolonged, Dr. Addison pointed to the bad configuration of the head as predisposing to the cerebral symptoms. This boy having died two years afterwards of brain disease, the skull cap has been kept in the Guy's Hospital Museum as illustrative of this physician's teaching.

There seems however no connection between the delirium of fever and the subsequent post-febrile maniacal condi-

tion. Whether puerperal mania is to be placed in this latter category, or whether it has any peculiar or specific character of its own is still a question. Occasionally in a person predisposed, it may be difficult to distinguish the temporary disturbance during acute illness, and the real mania which follows, as for example in the following case. A young lady of highly nervous temperament was suddenly seized with peritonitis which was supposed to originate in the ovary. She remained for some days in a most critical condition with her mind wandering; she then suddenly became acutely maniacal, bedecked her head with flowers, and played the part of a very natural Ophelia. She utterly refused to take food, and when at death's door was carried to an asylum, where she was forcibly fed. She has been there now many years hopelessly insane. Here we had delirium, post-febrile mania, and finally complete insanity. That persons predisposed to mental disturbance are those who would suffer especially from delirium in acute disease there can be no doubt. We know the case of a family, the children of which always become light-headed on the occurrence of such slight ailments as gastric derangement.

Delirium, as usually understood, is any deviation of the mental faculties symptomatic of and dependent upon febrile conditions, and therefore quite distinct from mania, although in this temporary disturbance of the intellect we may see presented to us every feature of insanity; thus in one case there may be great excitement, in another the symptoms are those rather of dementia, and in a third those of melancholia. As ordinarily seen the symptoms of delirium are slight, and of no great significance, for it is when the ordinary surroundings are shut off, as they are in the night-time, that the equilibrium of the patient cannot be kept steady, and he is apt to wander. This is constantly the case in all febrile diseases, but is generally present in the specific fevers. If the case be a severe one the patient is seen lying on his back, muttering to himself, or if the words be intelligible they refer to persons and objects far away, or to incidents long past, and to friends who are dead. It is remarkable how, in delirium, the thoughts run on past incidents while the present is effaced, the patient being quite obtuse to everything around him. If the delirium is not extreme the subject of it may be roused by speaking aloud to him or letting the light fall on his face; he may then suddenly emerge from his

dream-like state, recognise the speaker, and do little acts as he is bid; showing also that his senses are still alive, he will enter into imaginary conversation with people around him. But if his consciousness returns, and his mind obeys, it is but for a moment, he soon relapses into his former lethargy, and commences his muttering.

A.—The delirium attendant upon **specific fevers** is the most marked and enduring; in *typhus fever* it forms so striking a symptom that the disease has been called brain fever. In *typhoid fever* also, should the case be a severe one, a similar condition is seen, giving rise to the expression, the *typhoid state*, witnessed towards the end of many febrile complaints. This represents extreme nervous and muscular prostration, so that the patient lies on his back scarcely conscious, muttering to himself, talking incessantly of persons absent, and events long past. When the physician sees this, he is often forced to quote the words of Prince Henry when speaking of King John:—

“It is too late; the life of all his blood
Is touched corruptibly, and his pure brain
Doth, by the idle comments that it makes,
Foretell the ending of mortality.”

In *scarlatina* in children there is generally more or less delirium. Secondary mania sometimes occurs, and if so there is often a question how far a renal element may be present. In *measles* delirium is usually slight. In *small-pox* it is very remarkable to observe how differently the brain may be affected. We have seen a fearful case of confluent small-pox where the man was furiously delirious, and wandering about his house; at the same time we have seen the fatal hæmorrhagic forms where the mind was perfectly clear. It is possible that the difference depended on the temperatures. In *intermittent fever* there is often slight delirium in the hot stage, and Sydenham speaks of more marked mental disorders of a chronic kind occurring in those who are affected by malaria. This might have been due to actual changes in the brain and other viscera as a result of melanæmia, for Bright gives cases of a man and his wife who died of fever, and who were delirious, in whom the brain was of a black colour, as portrayed in his “Reports.” In *yellow fever*, as might be surmised, there is said to be much delirium. In *influenza*, quite apart from the light-headedness accompanying any pulmonary inflammation, there is often seen a tendency to delirium at the very onset of the disorder; the patient may

be almost suddenly struck down by the epidemic, and at the same time experience a wandering in his mind. In *glanders*, of which we have seen a few cases, delirium and coma terminated the case. We might allude to a transient wandering accompanying the so-called *milk fever* of puerperal women; this, if further developed, would probably constitute puerperal mania.

B.—In the **Phlegmasiæ**, or acute inflammation of organs, delirium is a common accompaniment. In *pneumonia* delirium is more marked and excessive than in any other acute complaint, so that it has not unfrequently happened that patients who have been suffering from inflammation of the lungs have been treated as if subjects of a primary cerebral affection. In *inebriates*, when the wandering puts on the form of delirium tremens, the pneumonia has been constantly overlooked. In other inflammations, as in *pleuritis*, *peritonitis*, &c., the delirium is but slight, and in the latter, where there is but little fever, it is remarkable that when death is near, shown by coldness of the body, and absence of pulse, the mind is perfectly clear. One of the most remarkable and extreme cases of delirium attendant on a febrile condition is that seen in *acute rheumatism*. It had long been observed that patients suffering from this disease suddenly became acutely delirious, and this was called metastasis to the brain. Sir Thomas Watson investigated these cases, and was the first to show that in fatal instances the brain was perfectly healthy; but as he found pericarditis he believed that the cerebral disturbance was symptomatic of the inflammation of the heart. It was soon afterwards, however, discovered that the brain symptoms often appeared in rheumatism without the occurrence of any inflammation whatever; the patient would suddenly lose all pains in the limbs, throw himself about in bed, break out in profuse perspiration, become wildly delirious, and present all the symptoms of one with delirium tremens. Since the thermometer has come into use it has been found that in most of these cases hyperpyrexia has been present, and therefore it is now generally believed that the delirium is attendant on the excessive heat; rather than on any latent *materies morbi* of a rheumatic character. It has been said that this cerebral disturbance has occurred in rheumatic fever without hyperpyrexia, but we have no experience of this, and as corroborative of the opinion that it is due to heat, may be mentioned the fact of the immediate

departure of delirium and return to consciousness when patients, suffering from rheumatic hyperpyrexia and almost comatose, are placed in a cold bath. In other cases, too, without any suspicion of rheumatism, delirium is attendant on hyperpyrexia. A little girl was suddenly taken ill with a fit and brought to the hospital, her temperature was 106, and she was delirious. Her temperature rose to 109, she had more fits, and died eight hours after the attack. In *sunstroke and heat-stroke*, as seen amongst the marching soldiers of India, and amongst the stokers of steam vessels where the temperature of the body rises very high, delirium and mania often occur, these are rapidly relieved by the application of cold water. This raises the question of how far the ordinary delirium of the febrile state is due to heat, or to some poisoned condition of the blood; the former view is supported by the case of pneumonia where the delirium is extreme, and the instances of malignant small-pox where the temperature was low, and delirium absent. In the acute fatal *dysentery* of the tropics delirium is a frequent symptom. In the more chronic forms of bowel complaint seen in children in this country, wandering and light-headedness are often seen. In *erysipelas* of the face and head delirium is frequently present. When severe, it is surmised that the membranes of the brain are involved in the inflammation, but of this there is no evidence.

C.—Delirium may sometimes occur as a **primary affection** in various diseases of the brain. In these cases it is not so much dependent on the febrile condition affecting the organ functionally as on a substantive change in the brain itself. Thus, in acute *meningitis*, there is usually delirium, and this may sometimes, though rarely, be of the violent or maniacal kind, but as a rule it is the quiet form, and soon passes into coma. In children with tubercular meningitis the delirium is generally associated with headache, and therefore the child continually groans or shrieks out with a very characteristic piercing cry. This is not met with often in ordinary febrile delirium. In *cerebro-spinal meningitis*, whether idiopathic or of the epidemic form, delirium is generally present. Some children of a very excitable temperament are liable to *night terrors*. They suddenly wake in the night, call out, talk wildly, and present the appearance of having been woke from a terrible dream. They are soon pacified by the mother and nurse, and return to a calm sleep. These attacks sometimes continue into adult life; the person starts up in

his sleep, calls thieves or murder, sees people about his bed, and after a little while realises his true position, and falls to sleep again. He usually calls these, attacks of nightmare. In various chronic diseases of the nervous system aberration of the mind may be met with. In some cases of *chorea* children sometimes become violent, striking or attempting to bite their nurse or mother. In *epilepsy* the mind is often affected, and the term *delirium epilepticum* is sometimes used to denote this derangement. Sometimes this is of a truly maniacal kind, in which the patient is violent. In other cases it takes the place of the fit, and may merely show itself in some strangeness of manner, or by the subject of epilepsy wandering about the streets performing extraordinary acts, and his mind in such a confused state that he totally forgets the occurrence when he has recovered his normal condition. Delirium, therefore, would hardly be the term to apply to the epileptic state, although the French use the term with a much larger significance than we do, as, for example, calling general paralysis by the name of *delirium des grandeurs* or *delirium ambitieux*. In *hysteria* the mind is often affected. Here again mania would be the more appropriate term to use in those cases where the patient is violent. In lesser forms of hysteria, where the patient is quiet, the mental disturbance and incoherence might with more propriety be called delirium. In *pregnancy* sometimes the mind is slightly affected. In *tetanus* the mind is usually clear, being only exceptionally disturbed. In *hydrophobia* we have seen the mind quite unclouded, but sometimes the patient is excitable and light-headed. In *lead poisoning* the whole of the nervous system may be affected, and to the extent of causing a fatal issue by a complete paralysis both of body and mind. In these cases the mental state has been simply one of dementia. Occasionally the cerebral disturbance has been so great as to require the confinement of the patient in a lunatic asylum. Delirium may sometimes arise from *concussion* of the brain. A less severe injury than that necessary to produce absolute insensibility may cause excitement instead. We have seen a boy after having received a blow on the head from a stone become excited, scream out, talk incoherently, and at last become almost maniacal. We have had under our care in the hospital a boy who had been struck on the back of the head by another boy with a heavy piece of wood; he immediately felt confused, lost his eyesight, and soon afterwards was

brought in. He was then in a state which would have been called hysteria had the case been that of a woman; he was excitable, constantly talking, and his conversation incoherent. After a short time he fell into a profound coma, and in this state he lay for three days, scarcely being able to swallow food, when he returned to consciousness, but talked incoherently and was strange in his manner for some time afterwards. A friend informed us that he was once in a railway accident in which he was much knocked about, but was uncertain whether he had received more of a physical than a moral shock; he, however, jumped out of the broken carriage into an adjacent field, ran about, threw his arms up, and felt that he was quite mad.

D.—Delirium may be symptomatic of various **chronic diseases** which affect the nutrition of the brain through impairment or vitiation of the blood. Thus, in *Bright's disease* a considerable amount of cerebral disturbance may occur, which is known by the convulsions and uræmic coma which are very common. Occasionally, however, we meet with nervous excitement, and this may increase until a true maniacal condition is reached, requiring the patient's seclusion in an asylum. We drew attention to this a few years ago* by the relation of a few cases of Bright's disease where the patients were subject to a temporary aberration of intellect. One was that of a railway guard who had been behaving so strangely all day that at last he was taken to the hospital. He was then found to be the subject of Bright's disease, but he in a few days recovered his mental equilibrium. In *liver disease* also we often meet with wandering of the mind. In acute atrophy of the liver there is often great delirium, and in cirrhosis of the liver, especially of the more rapid kinds, there may be great disturbance of the intellect or delirium ending in coma. In diabetic coma there is often some strangeness of manner or delirium preceding the final insensibility.

E.—Delirium may also arise from **inani-tion**, and therefore is met with in various chronic ailments which give rise to exhaustion of the brain. Thus, sometimes in the latter days of phthisis and other wasting diseases delirium occurs. In *exophthalmic goître* it has frequently been observed, but it is possible that it may have in this case a very special significance in connection with the function of the thyroid, for in myxœdema it may be remarked that the mental faculties are

much impaired. In severe *hæmorrhages* delirium often occurs; there is not only a tendency to faint, dimness of vision, a feeling of swooning, or confusion of thought, but an incoherence in talking. A wandering or light-headedness has often been observed in women from *prolonged lactation*. In *starvation* delirium is a frequent symptom, and fearful are the stories told of the actions of shipwrecked persons who have been for days without food. It is, therefore, quite necessary to recognise a *delirium of inanition*. Occasionally we have seen women who have been for many days and nights engaged in anxious watching at the bedside of a sick relative become the subject of a form of delirium approaching in every feature that of delirium tremens, shown by a constant restlessness, insomnia, and incoherent talking.

F.—Delirium may be produced by eating various **poisonous substances** or drugs, as belladonna or henbane. In the case of a boy in Guy's, who had eaten the berries of *belladonna*, besides the parched throat and dilated pupils which characterised the case, he had a curious kind of delirium; he talked indistinctly and incoherently, caught at imaginary objects in the air, his fingers were constantly in motion, so that his father thought he was intoxicated. These symptoms gradually passed off, but he did not thoroughly recover for some days. Cases of poisoning by belladonna have been described where patients had spectral illusions and fits of ungovernable laughter. *Hyoscyamine*, which has lately been used as a sedative, sometimes produces a delirium which passes into lethargy. It has been thought that Shakespeare alluded to belladonna or henbane in the words which Banquo uses when looking at the witches:

"Are such things here as we do speak about?
Or have we eaten of the insane root
That takes the reason prisoner?"

It may be remarked in favour of henbane that it had been called *insana*, "for it taketh away wit and reason." *Stramonium* is said also to produce delirium. *Cannabis Indica*, or Indian hemp, is well known to cause aberration of mind. Persons who take *haschich* lie quiet, but have pleasant illusions, and conjure up strange mental visions before their eyes. Where much is taken, a wild maniacal delirium is produced, followed by cardiac depression and paralysis of motion and sensation. In the case of two young ladies who took cannabis for headache, some very strange symptoms were produced. They became light-headed, and one went out in the streets, talking strangely, laying hold of

* *Journal of Mental Science*, July 1874

people's arms, and doing other curious acts. We might allude to *tarantism*, a kind of wild delirium met with in Italy, and said to be due to the bite of a large spider called the tarantula.

G.—The delirium arising from chronic alcoholism, and known as **delirium tremens**, is so peculiar as to require special notice. This was first clearly pointed out in a pamphlet published by Dr. Thomas Sutton in the year 1813, who distinguished it from the so-called phrenitis, and gave the complaint its present prevailing name. He admitted that, although the disease had not been described in books, it was recognised by experienced physicians, and adds these words: "Dr. W. Saunders, late physician to Guy's Hospital, whose opinion we had the advantage of obtaining on this tract, considered the description perfectly correct, and said he had mentioned the disease for many years in his lectures, and had been in the habit of distinguishing it from phrenitis during forty years of his practice. . . ." Dr. Sutton further says that he discovered its peculiarities by its being aggravated by bleeding and being cured by opium. He described how inebriates are after a time apt to become out of health, lose their appetite, become restless, have sleepless nights and their mind confused, and finally break out into a state of wild delirium. The too familiar case of delirium tremens is characterised by the restlessness of the patient, his endeavour to be busily occupied in his usual pursuits, passing from one object to another as is his daily wont, talking all the time incessantly and perspiring freely. If he is persuaded to go to bed, he is still constantly on the move, first sitting up and then lying down, endeavouring still to occupy himself with something, shown by the perpetual movement of the hands. He never ceases talking, generally about his affairs and is unwilling to be interfered with. At the same time he is the victim of hallucinations, taking the various objects in the room for living persons. He is constantly looking behind the curtains or stooping to look under the bed to see if any one is there, or moving his hands over the bedclothes in the attempt to lay hold of some imaginary crawling creature, as a beetle or a mouse. He is bathed in perspiration, with a quick pulse, furred tongue, no appetite, and complete absence of sleep; the temperature is generally low. When sharply spoken to, he will respond and answer rationally, but it is only for a moment, as he speedily falls back into his old condition, talking incoherently, seeing things running about on the bed, and believing that he is possessed

with devils. If tranquillity can be procured and some sleep, he is soon better; but if not, he sinks into the so-called typhoid state already spoken of, constantly talking and muttering whilst his fingers are still on the move, picking the bedclothes or searching for some imaginary creature. These symptoms augur ill, and we may now well say with the hostess, when speaking of the death of Falstaff, "for after I saw him fumble with the sheets, and play with flowers, and smile upon his finger ends, I knew there was but one way." Sometimes the patient is calm though full of delusions; he may call the members of his family around him, declaring that he is on his death-bed, and play the part of a benevolent father about shortly to expire. The scene is irresistibly ludicrous on account of the seriousness of the performance. From this affection occurring in chronic inebriates Dr. Sutton and subsequent writers enforced the importance of distinguishing it from aberration of mind arising directly from alcohol, and called it *delirium ebrietatis* as distinguished from *delirium e potu*. In their anxiety to maintain this distinction, that drinking was not the direct cause of an attack of delirium tremens, they went so far as to say that it was actually brought on by a sudden withdrawal of the accustomed stimulus. It had been observed that any unusual occurrence in the life of a confirmed drunkard, such as an accident, would induce an attack, and it was thought that the alteration in the mode of living was the main fact in the causation of events. It is true that any shock to the system, whether material or mental, will induce an attack, but it is also equally true that some special debauch is often the cause of starting the complaint. It has been conclusively shown that the mere withdrawal of the stimulant is not sufficient to produce delirium tremens. The governors of gaols, who receive into their custody many drunkards, do not fear any such consequence from putting their prisoners on water for drink, and medical men who have had much experience in the treatment of inebriates have no fear of seeing delirium tremens follow their withdrawal of the accustomed stimulant. The complaint is induced generally by a severe shock of a physical or moral kind acting on a weakened brain and one whose equilibrium is easily upset. If these causes are not apparent, it is found that the patient has had an extra debauch. A severe illness is very apt to induce the complaint, especially if it is acute and accompanied by fever or pneumonia. In

these circumstances the local inflammation is often overlooked.

Diagnosis.—The only important difficulty which can arise is mistaking delirium for mania or for a symptom of inflammation of the brain. As a rule, there can be no question of diagnosis, the febrile condition dependent on a specific fever or phlegmasia is sufficient to point to the nature of the case. In ordinary mania or insanity the condition is chronic, or at least the patient is comparatively well, may walk about and eat and drink like other persons; he has all his senses about him, although perhaps quite irrational. Of course, the maniac may have at times other symptoms implanted on his original disease, thus becoming in fact a delirious maniac. That mistake, however, do occur is seen in the fact that patients with delirium are sometimes sent to asylums as insane; we have heard of cases of scarlatina, typhoid, and chorea being sent to such institutions. As regards the old difficulty of distinguishing delirium tremens from inflammation of the brain, or phrenitis as it was called, there ought to be none; the difficulty was purely an imaginary one. It was founded on the old error that in inflammation of the brain the patient became excited; we ourselves have never seen but one instance where any wild excitement accompanied a meningitis. As a rule, the symptoms of inflammation of the brain on its membranes are those of torpidity. In taking a large number of cases during several years the only symptom common to all was increasing lethargy ending in coma. There may be delirium or wandering, but no maniacal excitement. A moment's consideration will show us that inflammation is a destructive agent and paralyses the brain in the same way that it does the lungs, the intestines, the muscles, or any other organ. The case which most closely resembles delirium tremens is that of the person who has had days of watching with sleepless nights attended by the most intense anxiety. We have known chronic alcoholism called general paralysis of the insane, and *vice versâ*. Probably the two conditions were the same, the alcohol having brought about exactly the same morbid changes in the brain which are found in general paralysis.

Pathology.—We have already said that inflammation of the brain impairs its function, producing symptoms marked by lethargy and coma. Therefore, in ordinary cases of delirium this is not the disease to be looked for; it is true that delirium may be one of the symptoms of meningitis, but this disease should not be

diagnosed from delirium alone, as other more marked symptoms must be present to characterise it. As a rule delirium is due either to increased temperature or to some deranged condition of the blood; we have already discussed this question, and shown the probability of its being due in febrile conditions to the increased heat; it being greatest in the phlegmasiæ, where the temperature is highest, and absent in many specific diseases, where the temperature remains low; there is also the case of the hyperpyrexia of rheumatism, in which the delirium ceases immediately on the temperature being lowered. We have shown, however, that poisoning of the blood is effectual in producing delirium, as proved by its occurrence in various chronic diseases, and in cases of artificial poisoning. A long prevailing opinion existed that delirium and similar brain disturbance were dependent on congestion of the brain. There are no facts to confirm this opinion, but, on the contrary, they tend to show that delirium is dependent rather on anæmic and impoverished conditions. We find, for example, patients with chronic bronchitis whose faces are livid with congestion, and whose brains, we know, are in a similar condition, fall into a torpid state, but make no complaints of headache or show any marked cerebral disturbance. It is very different in cases of anæmia, or hæmorrhage, or Bright's disease, where there is but little blood in the brain, and where delirium is often present. In delirium tremens the condition of brain which is prepared for an attack is one of anæmia and impoverishment. In old inebriates the brain is atrophied, the convolutions shrunken, and the sulci occupied by serum; at the same time the arachnoid may be thickened.

Treatment.—There is little room for speaking of the treatment of delirium, seeing that it is but a symptom of some other complaint. It may, however, be taken into account with other symptoms, and relieved by reducing the temperature when this is excessive, or by stimulants when dependent on inanition. In cases of specific fevers, where alcohol is useful, this may lower the pulse, decrease the temperature, and remove the delirium at the same time. In two cases of poisoning by alcohol which we have seen, the patients were collapsed and the temperature much reduced. In delirium tremens the object is to obtain repose. This is done by placing the patient in a quiet room, giving him food and opiates judiciously, but a cure cannot often be effected under four days. The indiscriminate use of sedatives prevailed too much in former times; the

giving of opium or morphia until quiet was produced, too often meant throwing the patient into a fatal coma. The wrapping in the wet-sheet sometimes produces sleep. The *delirium e potu* is best relieved by applying to the patient's head the cold douche, the classic expression for putting his head under the pump. S. WILKS.

DELIRIUM, ACUTE (*deliro*; *acutus*, sharp). A term applied to a sudden attack of the form of insanity usually called Acute Delirious Mania (*q.v.*). (Fr. *Délire aigu*.)

DELIRIUM ALCOLHOLICUM (*deliro*; *al*, the; *kohol*, refined or purified: see ALCOHOL). A synonym of Delirium Tremens (*q.v.*).

DELIRIUM AMBITIOSUM (*deliro*; *ambitiosus*, vain-glorious). The boasting mental condition common in general paralysis of the insane.

DELIRIUM, CHRONIC (*deliro*; *χρονικός*, relating to time). A synonym of Insanity.

DELIRIUM EBRIOSITATIS, DELIRIUM EBRIOSUM, DELIRIUM EBRIOSORUM (*deliro*; *ebriositas*, addiction to drink; *ebriosus*, a drunkard). Synonyms of Delirium Tremens.

DELIRIUM, EMOTIONAL (*deliro*; *e*, from; *moveo*, I move). A term used by Morel to describe that form of insanity in which the patient submits at once to a false idea without allowing any reason or previous experience to correct the first impression; he believed it to be caused by disturbance of the ganglionic nervous system.

DELIRIUM, EPILEPTIC (*deliro*; *ἐπιληψις*, a seizing or laying hold of). The mental perversion often accompanied by acts of violence, which sometimes follows an epileptic fit. (See EPILEPSY AND INSANITY; EPILEPTIC FUROR.)

DELIRIUM E POTU (*deliro*; *e*, from; *potus*, drink). A synonym of Delirium Tremens, from the cause of the affection.

DELIRIUM FEROX (*deliro*; *ferox*, fierce). Delirium accompanied by violent and angry excitement.

DELIRIUM FURIBUNDUM (*deliro*; *furibundus*, raging). The delirium of insanity. (See ACUTE DELIRIOUS MANIA.)

DELIRIUM FURIOSUM (*deliro*; *furius*, raging, mad). A synonym of Mania.

DELIRIUM GRANDIOSUM (*deliro*; *grandiosus*, from *grandis*, great). That form of insanity in which the delusions are all of greatness, strength, power, riches, or exalted position. A synonym of Monomania of Grandeur, and General Paralysis.

DELIRIUM, HYSTERICAL (*deliro*; *hysteria*, *q.v.*). A synonym of Mania, hysterical.

DELIRIUM, IDIOPATHIC (*deliro*; *ἴδιος*, peculiar; *πάθος*, an affection). Delirium occasioned by injuries of the brain or its membranes, or by intoxicating or narcotic substances.

DELIRIUM, INTELLECTUAL (*deliro*; *intellectus*, a perceiving, from *inteligo*, I choose between). A term for that form of mental disturbance in which the person suffers from the presence of groundless, causeless fears, ideas or imaginations, without any hallucinations or illusions.

DELIRIUM MANIACALE, DELIRIUM MANIACUM (*deliro*; *μανία*, madness). Synonyms of Mania, acute or chronic.

DELIRIUM MELANCHOLICUM (*deliro*; *μέλας*; *χολή*; see MELANCHOLIA). A synonym of Melancholia.

DELIRIUM METABOLICUM (*deliro*; *μεταβολικός*, changeable). The form of insanity in which the patient believes himself to be other than he really is. (See IDENTITY, MISTAKEN.)

DELIRIUM METAMORPHOSIS (*deliro*; *μεταμόρφωσις*, from *μεταμορφόω*, I transform). The form of insanity in which the patient believes that his body is transformed into that of a beast.

DELIRIUM, MICROMANIACAL (*deliro*; *μικρός*, small; *μανία*, madness). The form of insanity in which the patient believes himself to be a little child, or a dwarf with shrunken limbs.

DELIRIUM MITE (*deliro*; *mitis*, mild). Quiet wandering of the mind with muttering instead of wild talking.

DELIRIUM MUSSITANS (*deliro*; *mussito*, I mutter). A synonym of Muttering or Quiet Delirium.

DELIRIUM NERVOSUM (*deliro*; *nervosus*). A term used to denote the delirium of a sub-acute or chronic character, proceeding from the abuse of alcohol or other drugs, or from psychic causes. The term is also used by Dupuytren for the delirium following surgical operations and injuries. Also that form of delirium accompanied by distinct organic nervous lesions (Fr. *délire nerveux*).

DELIRIUM OF CHILDREN. (See DEVELOPMENTAL INSANITY.)

DELIRIUM PALINGNOSTICUM (*deliro*; *παλίγνωστος*, learnt again). A term applied to that form of insanity which is merely a translation into belief or actuality of a sensation sometimes experienced by any one on first going into a new place, that he has been there before; the insane conversion of this sensation makes the patient assert that he has been for

years in a spot to which he has only recently come, and that he has seen places which he has really never visited. (Ger. *Delirium des Wiedererkennens*.)

DELIRIUM, PARTIAL (*deliro; partio*, I share). Insanity affecting only one or few of the mental faculties.

DELIRIUM PERSECUTIONIS (*deliro; persequor*, I follow after). The form of insanity in which the patient believes himself to be followed by enemies devoted to his annoyance or destruction. A synonym of Delusions of Persecution. (Ger. *Verfolgungsmelancholie; Verfolgungswahn*.) (See PERSECUTION).

DELIRIUM PLACIDUM (*deliro; placidus*, gentle). Quiet delirium without violence. (Fr. *délire doux*.)

DELIRIUM POTATORUM (*deliro; potator*, from *poto*, I drink). A synonym of Delirium Tremens.

DELIRIUM, RHYMING (*deliro; ῥύμη*, a current, anything flowing smoothly). That form of maniacal incoherence in which words or verses of a similarly or closely similar sounding character are strung together.

DELIRIUM, SENILE (*deliro; senilis*, old). Senile insanity; dotage.

DELIRIUM, SENSORIAL (*deliro; sensorium*, the place of abode of the senses). Delirium accompanied by or caused by hallucinations. Also the form of insanity in which hallucinations and illusions are present in contradistinction to intellectual delirium.

DELIRIUM SINE MATERIA (*deliro; sine*, without, *materia*, matter). Delirium without appreciable cerebral lesion; a term applied to various forms of insanity.

DELIRIUM TREMENS (*syn.*, Alcoholic Delirium).—In consequence of the continuous progress of alcoholic intoxication, and sometimes through the occurrence of divers causes (illness, traumatism, moral shock, &c.), the effect of which is to diminish the psycho-physical resistance of the drinker, and make him at the moment more vulnerable, the individual passes into a state of delirium. This does not break out suddenly, or after a prodromic stage of only a few days, as is often described. If we examine the antecedents of a person suffering from alcoholic delirium, we shall find that the outbreak of the delirium was brewing long before; in fact there were often precursory symptoms much further back. This fact is not astonishing if we consider that a man whose brain is specially susceptible to the action of a poison, is already to some extent disordered. To repeat: A man through his nature apt to become delirious under the influence of alcohol, is

a man who is constantly on the border of delirium; one drop only will make the vessel flow over.

Delirium is in reality no other than the exaggeration of the normal state of certain drinkers, for these always are in a state of mental and sensorial hyperæsthesia, the exacerbation of which produces the delirium. Some drinkers are their whole life subject to dreadful nightmares, to sleeplessness, and to other prodromic symptoms of delirium, without ever stepping over the line which separates them from it.

Prodromic Symptoms.—These are sensorial hyperæsthesia and a progressive morbid exaggeration of the cerebral functions, accompanied by increasing nervo-muscular excitability; these symptoms are an indication of a still greater irritability of the grey matter of the brain and the spinal cord. All the faculties pass into a state of erethism. The habitual animation of the face betrays not only the intellectual excitation, but also the over-activity of the whole body. Break-down of the intellectual equilibrium, progressive mental instability, quickness in the production of ideas and excessive flow of the latter, rapid transformation of conceptions, all these are so many characteristics of this bubbling up, of this cerebral pruritus, which one finds at this period under the influence of an incessantly renewed stimulant. Sometimes it might seem as if the ideas follow each other with the rapidity of the fibrillary agitation of trembling muscle. The cerebral exaltation shows itself also in a great susceptibility of the character; in sudden passion and anger without cause, which often lead to violent actions on the part of the inebriated person, which he regrets the more, as they are brought about impulsively before the intervention of the will has time to prevent them. We see already the eminently sad character of the conceptions, altered under the influence of alcohol. The individual is aggrieved, misanthropic, and restless; he has uncertain fear and vague suspicion. Too much occupied with himself, and in some way troubled by this transformation of himself, which he perceives instinctively, he only cares for himself; his moral affective sensibility is diminished; one finds a tendency to absurd interpretation of the simplest facts. The absence of stability in his ideas and the diminution of will-power explain his attitude: he often changes his place, does not finish work he commenced; and is grieved with his unfitness and unskilfulness. At the same time, one may observe a disorderly activity, and an

intense neuro-muscular excitability, which causes the patient to walk incessantly, to move from one place to another, and to give out much strength for nothing; fatigue is never perceived. Conscience is not completely extinct, but it is visibly altered. Rarely are the patients able to judge their own state rightly. The rapidity of the conception is so great that the conscience does not receive any durable impression, and therefore is a bad judge.

There is one singular and constant symptom: All these troubles become exaggerated with the beginning of the night. The vague uneasiness increases, and becomes an inexpressible anxiety; the fright grows; if the patients are very much troubled they are unable to get rid of that fear, and to define their uneasiness. The fall of the day incites the thoughts to new activity, or, to express it better, the patient, who during the day had his attention distracted and his senses calmed down by manifold impressions from all sides, begins again to consider his own condition, as soon as he leaves off work and returns home, there being nothing more to distract him.

The nights show truly characteristic symptoms. The drinker does not get any rest; and especially the hypnagogic phase, in which the fantastical conceptions of dreams are produced, is of great moment. It consists of myriads of painful thoughts, of fearful nightmares, and dreadful visions, so that the patient prefers not to sleep at all rather than undergo this frightful punishment of the nightmare, which troubles him so vividly. One must have heard the tales of drinkers to know the great moral anguish they suffer. The slightest sensorial impressions, especially of hearing, which in normal sleep are simply stored away, or form the starting-point of an association of insignificant ideas, are here the germ of the most terrible scenes; battles, slaughters, punishments, incendiarisms, robberies, crimes, and all sorts of outrages follow each other or are mixed up in one picture. The patient plays an active part in these fantastical dreams, which escape the control of the intellect, and he awakes out of breath, bathed in perspiration, and sometimes sighing loud, at the moment when he falls down a precipice, or is to be devoured by a lion. Towards the end of the night only the patient, exhausted by sleeplessness and also by abundant perspiration, enjoys a little sleep, but dull and not deep it only lasts a few hours, leaving the patient more exhausted than before; in this way the resistance diminishes from day to day, still more lessened by fresh excesses in

drink. With the arrival of the day the fantastical dreams of the night disappear, and the patient again takes up his occupation.

The prodromic period is also remarkable for its *sensorial illusions*, which are numerous and precede the hallucinations of the next period. The excitability of the cortex is not yet great enough, and the conscience is not yet troubled enough, to make the illusions so many hallucinations. *The prodromic stage is the period of the illusions, that of actual delirium the period of the hallucinations.*

The illusions affect all the senses, but preferably those of vision and hearing. They possess the patient visibly, and augment his anguish. They are predominant at the end of the day and especially during the night, when, in consequence of the surrounding quietness, the brain is susceptible to the slightest impressions, the intensity of which is increased tenfold. Often the unfortunate alcoholists have to strike a light in order to put to instantaneous flight these terrible scenes, from which they were not able to withdraw their attention. Every sensation is interpreted: a ray of light, the shining of the fire in the fire-place, or a star, take the proportions of a great fire; a murmur, or an unusual noise, produces the effect of the discharge of a pistol, of a stroke of the clock, of the tolling of the funeral bells, &c. The patient feels vertigo, dizziness, and, even with his eyes closed, swimming of the head; he imagines himself falling, to be removed from his place, and to be carried through the air. A frequent and characteristic illusion of vision is the *displacement of objects* with more or less considerable rapidity.

All these illusions become the starting-point of so many painful dreams and strange conceptions, which the imagination invents with an incredible productiveness. The noise the patient hears is caused by a gang of armed robbers who come to kill him; he sees himself surrounded by assassins and thrown into the flames; he believes himself to be dead, and assists at his own interment; he sees his parents appear and friends long since dead, &c. The association of ideas is rapid: frightened and exhausted the patient suddenly starts out of his dreams and perceives that he has been subject to an illusion; then the same phenomena appear again till daybreak.

To resume: The prodromic period comprises symptoms in the sphere of the intellect and sensory system. The predominant characteristic of the latter is, that they are *nocturnal, in motion, and painful.*

At the same time *somatic symptoms* establish themselves: Gastritis, morning sickness, and expectoration of mucus, abundant perspiration, and a characteristic tremor of the hands and speech, of which we shall say more further on (see ALCOHOLISM). Thus we reach the period of alcoholic delirium.

Delirium.—The paroxysm consists of exaggeration of the preceding symptoms with the addition of two groups of fresh symptoms: *extinction of consciousness* and *very intense hallucinatory phenomena*, which take the place of the illusions of the prodromic period. After a few days the illusions have become more frequent and sleep has entirely disappeared; the tremor is very intense; the troubles of the intellect are no longer nocturnal only, but continue in the daytime. The patient has given up his occupation. Trembling and frightened he lives in a perpetual nightmare. Conscience has been gradually extinguished, and the delirium is continual. The patient is a victim of *panophobia*; he is the sport of all his senses, producing myriads of hallucinations, which follow each other with a frightful rapidity, leaving the brain no respite and no intermission, keeping the patient constantly in alarm, and maintaining the delirium. The hyperæsthesia of the cortical centres is at its height, and reminds us of the maniacal state, but here the delirious conceptions have uniformly a sad and frightful character. The attitude of the patient varies according to the nature of his visions; he is often depressed, oftener still excited, turbulent, and loquacious; even if he looks depressed, he moves about, and rarely remains in one place.

Before entering upon the different modes of reaction of the patient, we must dwell on the conspicuous characteristics of his delirium.

It is essentially hallucinatory. The hallucinations take possession of all senses, but notably of *vision*. They create the delirium and are sufficient to maintain it. The visual hallucinations have invariably a *threefold character*; (1) they are numerous and changeful; (2) their objects seem to *move about in space* with great rapidity; (3) the visions are painful and frightful.

The patient sees the most frightful and awful scenes defile before his eyes with extraordinary rapidity. These are on the whole the same scenes which unrolled themselves before him in his nightmares during the prodromic period, with the difference, however, that now he is himself an actor as well as a spectator; he is in these tragedies the principal personage and believes in their reality. The suc-

cession of scenes is as rapid as in a kaleidoscope; scenes of slaughter, murder, and incendiarisms; the patient sees funerals pass by, assists at an execution, or sees his wife and children killed; he sees grimacing figures; the objects take on other colours, appear transfigured, &c. The most typical visual hallucination, however, is the *vision of animals*, real or fabulous, monsters and chimeras, of objectionable and repulsive animals, as spiders, rats, mice, &c. They are mostly aggressive; the patient sees them rushing up to him and showing him their teeth. What augments his fright is that all these objects are gifted with motion; the animals run about and climb upon his shoulders; the objects change their form, grow or become smaller, and finally vanish, to reappear or to make room for others.

These hallucinations are joined by numerous *illusions*; real objects take fantastical proportions; the patient incorporates them in his delirium; everything is the cause of delirious interpretation, so much so that through the incessant mingling of subjective and objective elements the delirious scenes become multiplied indefinitely and go far beyond any description.

The other senses play a lesser but still an important rôle. The patient *hears* a noise in connection with the painful situations in which he happens to be; discharge of cannon, shouting, howling, sighing, and the ticking of clocks. *Much more rarely* the sounds seem to come from a human voice; these are abusive words and threats sometimes addressed to himself, but generally uttered by people who have a dispute among themselves. In all cases these hallucinations are not fixed, but have the changeability of visual hallucinations; the voice is not the tenacious, obstinate voice of a determined man who always uses the same abusive words as in persecution mania. The auditory hallucinations are frequent; a slight sound becomes increased a hundredfold, and is the discharge of a gun; a door which is slammed is the outbreak of a hurricane.

Taste and smell are rarely affected. Sometimes the patient smells obnoxious odours or has a disagreeable taste in his mouth, but mostly these are hallucinations which the patient suggests to himself; he smells the smell of the bodies which have been killed before him, the powder, blood, &c.

The *general sensibility* is much more affected. The patient has millions of disgusting animals creeping about or on his skin; he feels the bites of the dogs that persecute him, the warmth of their breath,

his mouth is full of hair and thread, of which he tries to get rid by spitting them out or seizing them with his hand.

We see that the sensory symptoms play a predominant part in the acute intoxication with alcohol. They show a hyperexcitability of the cerebral cortex in consequence of which the mind-pictures stored up, rise, and become external, on the slightest cause. This is still more confirmed by the facility with which one is able to produce these hallucinations in a person labouring under alcoholism. If we suggest to him that his coat is covered with stains or with small insects, he will at once begin to brush it energetically, to chase the insects, and to crush them under his foot. All these hallucinations are doubly frequent and intense in the night. This is the continual and therefore pathognomonic character of alcoholic intoxication.

There is still another special character in alcoholic delirium. It is especially observed in the slight cases where the excitement is less and the hallucinatory phenomena are less intense — the professional character. The patient thinks himself busy with his usual work; he gives orders, manages his business, debits the goods, and quarrels with his fellow-assistants; a soldier goes through his drilling exercise; a mechanic mounts his machine, a shepherd tends his sheep, &c.

In consequence of the rapidity and variety of the sensory phenomena, the alcoholic delirium appears incoherent, absurd, and without any connection. It is an hallucinatory and consequently a secondary delirium. There are no other delirious ideas, strictly speaking, besides those which are directly connected with the hallucinations, and therefore they possess the mobility, the confusion, the number, and the principal character of the same. This is so true that if we succeed in diverting for a moment the attention of the patient by a sudden question, we may receive an intelligible answer. Consciousness is only secondarily obscured by the intensity of the delirium. The delirious scenes follow each other so rapidly that mental action has no time to exercise any influence, their impression on the consciousness is so slight and brief that they leave behind only a confused remembrance. The actions and words are correlated with the delirium from which they proceed. Sometimes the patient is loquacious, sometimes taciturn, stupefied, and stunned. Sometimes he reacts by flight, sometimes by threats and violence, and sometimes he tries to seize or to chase the phantoms which trouble him. Suicide and homicide

are actions occasionally observed in delirium tremens. The attention is completely turned away from the common incidents of daily life, and therefore the patient may unconsciously commit reprehensible actions which make him particularly dangerous; incendiarism, robbery, and destruction of all sorts of things; he is violent, turbulent, and difficult to restrain; he shouts, howls, sings, or whistles. His face is animated, red, and swollen, and the body is bathed in perspiration. All the muscles are agitated with fibrillary tremors, the hands, lips, and tongue partaking thereof. In the more severe cases the muscular vibrations are no longer limited to the muscles of the surface. The muscular mass of the hands then show a vibration and oscillation down to the deep muscles.

This is the veritable trembling delirium, corresponding to some extent to what has been called (Delasiauve) *delirium tremens superacutum*, which name, however, ought to be retained for the severe and often fatal cases of *febrile delirium tremens*. All the deliriums caused by alcohol do not present themselves under this perfect form. The agitation has degrees, the reactions are more or less vivid, and the aspect and the attitude of the patient are proportionate to the intensity of the hallucinatory phenomena. Some patients have a quiet appearance, and are simply agitated by slight trembling. Their physiognomy is fierce, they are silent or talk but little; their delirium, however, is not less active; we may read on their faces the manifold transformations of ideas.

As a whole the history of alcoholic delirium may be summed up in its four prominent characters, which Magnan has so well set forth; *changeable, nocturnal, frightful, professional*. We might add the *hallucinatory* character, which is so important.

To complete the description of common delirium tremens, we have to mention certain somatic symptoms, the diagnostic value of which is very great, and in the first place we have to name the *derangements of cutaneous sensibility*. At the commencement of the onset we often may note a greater exquisiteness of this sensibility, but afterwards this hyperæsthesia gives place to *anaesthesia*, especially with regard to pain. The patient hurts or wounds himself, and even undergoes an operation without appearing to have any inconvenience. We may remember that this is also the case in drunkenness. This anaesthesia has two causes: (1) the attention of the patient is exclusively directed to the delirious scenes;

(2) if we meet with it in old drinkers, it is nothing more than what we commonly find in the course of chronic alcoholism—anaesthesia caused by cerebral lesions which have taken place.

The complete apyrexia of alcoholic delirium at the onset is noteworthy.

The temperature does not exceed 100.4° F., if no organic complications are present. The pulse is not accelerated, and respiration is normal, in spite of the violence of the agitation.

Lastly, there is continual *insomnia*, a disordered condition of the digestive organs, and abundant diaphoresis.

Course, Duration, Termination.—If delirium tremens develops without complications, the attack is not dangerous; it is like a storm that loses its force in a few days (three or four at least). Gradually the agitation diminishes, the hallucinations are less intense, and illusions take their place; in other words, the abnormal phenomena pursue an inverse course to that of the prodromic period. The hallucinations first cease during the day, leaving the consciousness clear; they reappear during the night, and then disappear gradually; leaving some sensory illusions and insomnia behind. The somatic symptoms subside, and the whole condition improves. Only the tremor remains for rather a long time, although not perceptible to the naked eye. Recovery, therefore, is the rule, preceded by a longer or shorter period of convalescence according to the age of the patient and his state of weakness; during this time we find a certain intellectual dulness and laziness, great muscular fatigue, and a little depression. The most severe complication which may occur, and completely change the prognosis, is *fever*, which deserves special mentioning.

Febrile Delirium Tremens.—This form, which was first fully described by Magnan, is characterised by a sudden rise of temperature to 102.9° , and even 107.6° F., and comes on about the fourth day of the onset of the alcoholic delirium. It is observed especially in drinkers who, a short time before, had taken an excessive quantity of drink; these patients are at the commencement of the active period of their delirium completely saturated with alcohol. In a few days, often in a few hours, they fall into extreme prostration with general paresis, and retain the high temperature without the delirious symptoms increasing in proportion to the severity of the general condition.

Our space does not allow of mentioning specially a form, called by some authors **Convulsive Delirium Tremens**, and

characterised by such an exaggeration of the muscular tremor, that this is transformed, in some cases, into clonic or epileptiform convulsions. This complication, however, does not alter the prognosis. It may be attributed either to a kind of idiosyncrasy which predisposes those individuals to convulsive nervous conditions, or to the ingestion of substances causing epilepsy, as absinthe or furofuro, of which we have to say more at another place.

Treatment.—If the attack of delirium tremens can be foreseen, and if the patient cannot possibly be withdrawn from the influence of the poison, it is necessary to sequester him in an asylum. At the onset, the patient must be isolated in a room from which all objects have been taken away which might do harm, and the floor of which is covered with mattresses; the windows must be padlocked, to prevent suicide by jumping out, and several attendants must guard the patient, for a strait-jacket ought *never* to be used. Only, if there is not sufficient help, or a properly prepared room, mechanical restraint may be employed, but these must be put *on the lower limbs only*. The upper limbs and chest must always be left free to avoid pulmonary complication, which are often fatal, and are caused by the use of the strait-jacket. We believe it to be possible always to guard the patients by attendants, so that we may dispense *à priori* with all means of restriction. Absolutely to abandon alcoholic drinks, in spite of the practice of certain medical men; to support the organism by tonics (milk, quinine); to employ sedatives and narcotics in large doses and long-continued, these are the principal indications for the treatment of delirium tremens. Of very great use are bromides, especially associated with chloral, by the mouth, or as injection. Opium and morphia must as much as possible be avoided.

We must remember that generally the attack of delirium tremens lasts a short time only; this is an important fact to consider, in order to regulate the question of sequestration. If a patient can conveniently be isolated at his own home and sufficiently protected against himself, sequestration may be avoided on account of the shortness of the attack, in spite of its intensity. But for poor patients, for certain cases of relapse, and for predisposed patients, in whom the attack may last a long time, sequestration is indispensable.

Care must be taken during convalescence; tonics, good food, bitters, purga-

tives, fresh air, and physical exercise, aid recovery much. (See ALCOHOLISM.)

M. LEGRAIN.

DELIRIUM TREMENS CHRONICUM (*deliro*; *tremens*, trembling; *χρονικός*, relating to time). A form of delirium occurring in old drinkers with little violence, and lasting many weeks.

DELIRIUM TREMENS FEBRILE (*deliro*; *tremens*, trembling; *febris*, fever). A form of delirium tremens in which there is high temperature, very quick pulse, and great muscular weakness.

DELIRIUM TREMIFACIENS (*deliro*; *tremifaciens*, from *tremor*, a trembling; *facio*, I make). A synonym of Delirium Tremens.

DELIRIUM VERBORUM (*deliro*; *verbum*, a word). A form of insanity in which there is great loquacity.

DELIRIUM VESANICUM (*deliro*; *vesania*, madness). The delirium, or incoherence, delusions, hallucinations, illusions, restlessness, watchfulness, &c., of insanity. (Fr. *délire vésanique*. Ger. *Delirien bei Geisteskrankheiten*.)

DELIRUS (*delirus*, crazy). A term for delirium or insanity; also one who is delirious or insane.

DE LUNATICO INQUIRENDO. (See CHANCERY LUNATICS.)

DELUSION.—Divisions.—Consciousness, which, as has been shown (see CONSCIOUSNESS), is from one point of view divisible into feeling and thought, is, from another point of view, divisible into consciousness of self and consciousness of the relation of self to surroundings. It has been shown that consciousness is the shadow or accompaniment of nervous processes, and hence it is obvious that the one must reflect the varieties of the other. Now the operations of the nervous system are susceptible of divisions into two great systems, of which the one subserves the regulation of the so-called vegetative processes—assimilation, nutrition, secretion, with their contributory functions, digestion, circulation, and respiration; while the other regulates, with the aid of the special senses and the voluntary muscles, the relations which the body as a whole maintains with respect to its surroundings. Parallel with these two main divisions of nerve function are the two main divisions of consciousness—the consciousness of self and the consciousness of the relation of self to its surroundings. Each division of consciousness accompanies the working of its corresponding division of the nervous system, and each depends for its integrity upon the integrity of its corresponding material moiety. By the division of the

nervous system regulating the nutritive assimilative and visceral processes is not meant merely the sympathetic and its allies. There is no doubt that these processes are represented throughout every grade of the nervous system, from the highest to the lowest, and although the representation in the highest regions of the nervous system, which are the substrata of consciousness, is less prominent and less conspicuous than the representation of the relations of self to surroundings, it is equally pervading, and it is more voluminous and fundamental. It is obvious that there can be no representation of the relation of self to surroundings if there be no representation of self, and it is the nerve centres which receive and emit currents to and from the viscera that form the basis of our consciousness of self. Hence, when the functions of these centres are disordered the consciousness of self suffers disorder, and when disorder affects the other moiety of the nervous system there is disorder of the consciousness of the relation of self to surroundings.

Since the consciousness of self enters as an integral part into every concept of the relations of self to surroundings, it is obvious that disorder of the first moiety of consciousness cannot long exist without involving the second.

Disorders of the Consciousness of Self.—These may be either disorder of feeling or disorder of thought; and in the latter case the disorder may be either general or partial, the first including those disorders in which the consciousness of the whole self is disordered, the second those in which a part only of the consciousness of self is disordered.

Disorders of self-conscious feeling are three: elevation, depression, and alteration of consciousness.

Elevation of self-consciousness, or exaltation, is an exaggeration of the natural and normal feeling of well-being that attends the state of great bodily vigour, in which the nerve processes of bodily function are active, vigorous, and of high tension. When the body is normally full of vigour and all its fundamental or vegetative processes are in high activity, the corresponding condition of self-consciousness is pleasurable. There is a feeling of vigour, of capacity, of activity and energy, and the whole massive state of pleasurable self-consciousness is summed up in the term elevation or buoyancy of spirits. When, from abnormal states of the nervous system, a similar condition of nerve tension prevails, the self-consciousness is similar; and when, as sometimes happens, the same nerve processes are ab-

normally active, the state of self-consciousness is one of abnormal elevation of spirits. The individual so affected is abnormally happy and jovial. No matter how feeble he may be in body, he feels "all right"; no matter how disastrous his circumstances, he is more than content; he is in high spirits. Ordinarily this over-buoyancy of spirits is accompanied by delusion of the relation of self to surroundings; but occasionally we meet with cases in which the individual appreciates truly his hopeless bodily condition and his embarrassed pecuniary circumstances, and yet maintains his abnormal condition of happiness.

In **depression** of spirits the opposite state of things prevails. Normally this condition of self-consciousness accompanies a sluggishness and inactivity of bodily processes, and especially of the nervous processes that regulate the general bodily functions. Such inactivity in the normal is brought about by untoward circumstances, so acting upon the organism that its efforts are unsuccessful. But abnormally the same condition of the bodily processes may arise spontaneously without the external provocation and justification; and in such conditions of body the same depression of spirits will occur, unjustified by, and out of correspondence with, the circumstances in which the organism is placed. As in the case of elevation, this condition of self-consciousness is commonly accompanied by an affection of the other moiety of consciousness, and the patient entertains delusions with respect to his relations with surroundings. But, far more frequently than in the case of elevation, we meet with cases of depression that are simple affections of self-consciousness and do not involve delusions of the other order. In such uncomplicated cases the patient feels miserable without knowing why, and without attributing his misery to any fancied circumstances. He feels miserable without there being any justification in his circumstances for the misery, and that is all.

Alteration of Consciousness.—Separate from either elevation or depression, there are conditions in which the feeling of self is altered. The alteration may be attended by elevation, or more commonly by depression, and it may, and commonly is, attended by some disorder of self-knowledge; but distinct from all these is an alteration in self-feeling which cannot be otherwise described. An instance of what is meant is afforded by the malaise that attends the onset of fever. Here the feeling of self is much altered. There is often, it is true, a feeling of wretchedness,

but distinct from this is a feeling, compounded of impotence and other feelings, which go to make up what is known as the malaise of fever. Among the insane a case is occasionally met with in which patients describe themselves as "altered," as "not the same," as "unnatural," and so forth, all of which expressions mean an alteration in the feeling of self.

Disorders of Thought.—Delusions of the knowledge, as distinguished from the feeling, of self, are more diverse, and may be distinguished as general and local, the former referring to the knowledge of the body as a whole, the latter to the knowledge of parts.

General disorders of the knowledge of self vary according to the relation of the new self to the old.

In the *first* class of cases the old self is replaced by the new; as in a case reported by Dr. Hack Tuke, in which a man had literally lost himself, and looked for his old self under the bed; as in people who believe themselves to be birds or other animals. Cases of complete replacement of the old self by the new are not common.

In the *second* class of cases, the old self and the new self alternate. A person passes through alternating phases of existence of days or weeks' duration, remembering, while in one phase, the experiences of that phase and of other phases of the same set only. Thus, after a hysteroleptic attack, a person awakes with a changed disposition, and with total forgetfulness of her past life; and in this phase, which we will call *a*, she remains for a few days or weeks. At the end of this time, she has another similar attack, on emerging from which she is found to have resumed her former character and to remember only the experiences previous to entering the state *a*. After a variable interval, another attack supervenes, and she again emerges in state *a*, remembering the occurrences of the former state *a* and oblivious of the rest of her life; and these alternations may occur a number of times.

In the *third* class of disorders of the whole self, the two selves actually co-exist, and the patient believes himself to be two people at once. Such cases are extremely rare.

Cases of partial disorder of the knowledge of self are much more common. They include partial disorder of the knowledge of the whole self, and disorder of knowledge of part of the self.

Partial disorder of the knowledge of the whole self is seen in those who, while preserving a knowledge of their own identity, believe that they are changed in some im-

portant particular, as, for instance, in sex, or in some material composition of their bodies, which has become iron or putty, or glass or paper, or what not; or that they are enormously strong, or big, and so forth.

Cases of disorder of the knowledge of parts of self are very common and multifarious. The patient thinks that his head is open, that his brains have been removed and replaced by some other material; that he has a parasite in some part of his body—a wolf, a crab, a weasel, a demon; that he is pregnant; that his bowels are stopped; that his head is no larger than a nut; or, as in a case under my care, that his penis is fifteen miles long; or, as in another case, that his arms are so strong that if he moves them he will shake the house down. (It was not a semi-detached modern villa, but a substantial asylum, and there was therefore no ground for the alarm.) In nearly all cases of disorder of the knowledge of parts of self there will be found some actual structural modifications of the part involved; and there can be no doubt that the alteration in nerve currents due to this altered structure is the occasion of the reference of the delusion to this particular part of the body.

Disorders of the Consciousness of the Relation of Self to Surroundings.—The second great division of delusions is that which includes delusions of the relation between self and surroundings; and this is further divided into delusions of the relation of self to surroundings, and delusions of the relation of surroundings to self.

Delusions of the relation of self to surroundings are delusions either of increased welfare or of diminished welfare. The writer has not met with a case of delusion of this class in which the consideration of welfare was absent. Delusions of both kinds are very common, and are ordinarily associated, the one with exaltation, the other with depression, of the feelings of self. Under the first head fall delusions of power, of wealth, of consequence, of influence, most delusions of the grandiose class and megalomania. To this class belong the delusions of those who think themselves millionaires, kings, emperors, saviours, gods, &c. The minor degree, which does not exceed the limits of the normal—the instances of persons having exaggerated opinions of their own grandeur and importance—is common enough, and the major degree is merely an exaggeration of the minor.

Under the second head fall self-accusatory delusions—delusions of sin, of crime, and wrong, supposed to have been com-

mitted by the deluded person. Such a fancy as that of witnessing one's own funeral would come under this head.

Delusions of the relation of surroundings to self are similarly divisible into delusions of beneficent relation and delusions of inimical relation. In rare cases delusions of this class exist without reference to welfare.

Delusions of beneficent relations of surroundings to self are frequently, but not always, accompanied by marked exaltation of the feeling of self. They include cases in which the patient thinks that honours or commands are conferred upon him, and the like. The typical case is that of the cock which thought that the sun rose every morning to hear him crow. Common instances are those in which the deluded persons believe that people in high station are interested in them, are in love with them; that the Deity Himself has chosen them as His elect; that the attention of the nation, of the whole world, is fixed upon them, and so forth.

Delusions of inimical relations of surroundings to self are, from a practical point of view, the most important of all, for they are the only delusions which directly prompt acts that are dangerous to others. They are also exceedingly common; in fact, the great majority of delusions belong to this class, which includes the whole vast category of delusions of suspicion and persecution. In so large a class wide variations will naturally be found, the chief differences prevailing being in the definiteness of the delusion. When a man thinks deludedly that, for instance, his wife is unfaithful with a certain acquaintance, and specifies the occasions of her unfaithfulness, the delusion is very definite, and in such cases the proof that the belief is a deluded one is often difficult to obtain. When, on the other hand, he believes that certain persons unknown, or certain occult influences are conspiring to injure him in some indescribable way, the delusion is indefinite, and the proof of its inaccuracy is usually easy.

Definite delusions of inimical relations of certain individuals are highly dangerous. From believing that one is injured to retaliation upon the injurer is but a short step, and one that is frequently taken, and delusions of this kind are specially prone to lead to violent conduct. Similarly, delusions of ill-treatment by a class of individuals may lead to violence towards either any member of the class or towards some prominent and representative member. Thus, if a man fancies that there is a conspiracy among lawyers

to prevent him from obtaining justice he may shoot at a judge. Or if a soldier entertains the delusion that he is ill-treated by the military authorities he may murder the first officer that he meets. Where the delusion is of less definite character, it by no means follows that the danger of violent conduct is absent. Not infrequently a vague delusion of persecution by occult influences, by electricity or telegraphs, will gradually concentrate and focus around one individual, who is credited with setting the persecuting apparatus in motion, and who thenceforward becomes an object of hatred and potential violence. Again, the very fact that there is no definite individual to be held accountable will sometimes be a cause of violence towards some person in a prominent position, the motive being to have "attention" drawn to the "case." In some cases the delusion of persecution becomes so dominant that the sufferer, without definitely identifying any one as persecutor, is roused to blind fury, and runs amuck at every one who happens to be within his reach. (See PERSECUTION MANIA.)

C. MERCIER.

DELUSIONAL INSANITY (*deludo*, I mock at; from *de* and *ludo*, I play). (See DELUSION.)

DELUSION OF DOUBT. The Anglicised term for *Folie du doute* (*q.v.*).

DÉMENCE.—The French term for dementia.

DEMENTED (*dementia*, madness; from *de*, neg.; *mens*, the mind). A popular term for any form of insanity, more properly the subject of dementia.

DEMENTIA.—**Definition.**—A state in which manifestations of mind are to a greater or less degree absent in consequence of disease or decay of the brain itself. It is always an acquired condition, and as such is to be distinguished from amentia, which is either a congenital state or one closely connected with that period.

Symptoms.—The particular degree of mental failing required to constitute dementia is by no means easy to fix, and the same may be said of the time when it comes on, for while the symptoms are very marked in extreme cases the less pronounced examples shade off into mere loss of energy or simple stupidity. There is, in fact, no hard-and-fast line to be drawn between that lowest degree of manifestation of mind that is consistent with responsibility, and the slight indications of mental failing that betoken an affection of the nervous system which is either to be progressive in character, developing ultimately into well pronounced acute signs, or is to remain for an indefinite time

in a subordinated stage, to end finally in death or recovery. Sometimes the existence of dementia is only shown by loss of memory or loss of energy, and there are no positive signs of acute disturbance such as delusions, hallucinations, or incoherence; there is, in fact, merely a negative manifestation of brain action. At another time there may be great and continued muscular disturbance with so negative a state of mind that in all probability very little consciousness remains. Nor do we gain much assistance from consideration of the bodily symptoms, for the conditions of circulation, respiration, temperature, and digestion may be more deranged in dementia than in pronounced instances of mania or melancholia. We see, then, in dementia a diminished state of mental power, shown either in impaired thought or action, combined or separately, and one or the other of these states may be either transitory or persistent, whilst the length of time during which the condition lasts may be short or very considerable.

Conditions and Course.—The conditions under which dementia may exist are thus seen to be very far-reaching; indeed, it may be affirmed that at one period or another it holds a place in the completed history of every attack of insanity, bearing in mind that few attacks of insanity are completely evoluted; for whilst some prove abortive, one or another symptom being masked or absent, others terminate in death or recovery before the clinical features have had time to develop. The chief thing to remember is that dementia may be either a transitory or a permanent condition, that in many of its forms it is a hopeful phase of disease, and that the study of the clinical conditions under which it is found is very necessary, as, according to the successful interpretation of these, the prognosis and the treatment of the patient are greatly influenced. A person in a state of dementia was at one time better than he is now, but a person affected with amentia may be now better than he ever was. Dementia presents a subordinated degree of manifestation of symptoms, there is less range of excitement than in mania and less emotional depression and consciousness than in melancholia, but the term is after all used rather in an arbitrary manner to signify mental failure of a non-congenital type unattended by positive signs of excitement.

Forms.—The various forms of dementia met with are usually described as *primary* or *acute*—by some mental stupor of the anergic type is included under this head-

ing; *secondary*, or that following acute attacks of insanity, whether of the maniacal or melancholic form; *senile*, an exaggerated form of what would appear to be the natural resolution of the body in old age; and *paralytic dementia*, a term given (wrongly in the opinion of some) to the profound enfeeblement that occurs in the last stages of general paralysis.

Primary Dementia.—There may be a gradual enfeeblement of intellect, without the previous exhibition of very prominent symptoms, and, as a matter of fact, we find numbers of instances of persons who have been in a demented state for years, people in whom there is no history of very prominent early symptoms, but who have gradually acquired a few harmless delusions, who are tractable and docile, refusing to occupy themselves, but going on quietly to the end, and all the history we can obtain is, that they were useless in the grade of society to which they belonged. Such a case illustrates the difficulty we have in saying whether or not the symptoms show merely harmless dementia, for it may happen that after the condition has lasted for years, it may turn out to be the precursor of a violent attack of maniacal fury. We have known a patient remain for years in a condition of quiet dementia, orderly and contented, spending most of his time in studies of a religious nature, and then suddenly develop most dangerous maniacal excitement, showing that the mild primary dementia was merely a protracted first stage of acute mania. (See MENTAL STUPOR.)

Secondary Dementia, or that form of mental impairment following on acute attacks, forms a very large proportion of the populations of asylums. According to Dr. Clouston, whose address on this subject in the *Journal of Mental Science*, for October 1888, should be read, it accounts for two-thirds of the insane population. Dr. Clouston says that "it may be looked upon as a reversion of type and a beneficial result of the laws that bring a bad stock to an end. Real secondary dementia may be so closely imitated by secondary stupor that only time and the effects of treatment can distinguish them. It cannot be looked on as caused by the damage done to the mind-tissue through the primary acute disturbance, for it often occurs without an acute primary stage, and its occurrence bears no relationship to the intensity or duration of the primary attacks. Typical secondary dementia is always hereditary. It does not readily supervene on the insanities that occur after full development and before the

period of decadence, such as puerperal and lactational insanities, or those resulting from overwork or emotional causes at that age. Almost all pure cases will be found to have originated in pubescent and adolescent insanities. Adolescent insanity ending in secondary dementia may be regarded as the typical form of mental disease." So writes Dr. Clouston, and we have deemed it necessary to reproduce the main features of his address, not because of their general acceptance, but because of their novelty and importance.

Degrees of secondary dementia vary considerably in the extent and variety of the symptoms. In some patients loss of memory and apathy are the chief signs, but in extreme states there is an almost negative condition of mind, for the memory and will are so impaired that the subjects become mere machines in the hands of other people. The habits of persons in this extreme stage are often very depraved and disgusting, for they swallow anything they can get hold of, they bolt their food, and are very destructive of clothing. They often prefer to squat or lie on the ground, and they cover up their heads with their dress, a habit which no amount of attention can eradicate. The physical signs correspond with the mental degradation, for the face loses intelligent expression, the skin becomes muddy, and, as a rule, the body loses weight, though some on the other hand become very stout. Many of the "secondary demented" are liable to temporary accessions of excitement, during which they may become suicidal or dangerous to others. The extent to which the destructive propensities of patients of this class are carried is extraordinary, and they are apparently done without object, for there is scarcely sufficient intelligence left to put forward delusion as a cause for it. Some spend their time in making grimaces, or in repeating some particular movement, or in constantly saying a particular phrase. They do not recognise their friends or attendants, and are practically dead to external impressions, so that, if left to their own resources, they would die.

It is from this class of persons, only in a less advanced stage of the disease, that most of the workers in asylums come. Some of them live to a great age, and notwithstanding their lean and haggard appearance, which no amount of feeding will alter, live on through all changes of temperature, utterly regardless of those around them, and so inattentive to their own sensations as to be most unclean in their habits, finally dying from diarrhoea, pneumonia, or gradual decay. The appe-

tite of some of these people is enormous, and they have to be carefully fed to avoid being choked. Some slight improvement may be made in their habits by regulating what remains of their reflex system; thus, by calling them up at night, they can be kept clean, and they may be educated to some habits of tidiness and regularity, although in these particulars they are far inferior to the idiot and imbecile classes. No class of persons requires more attention than these secondary dements, for they lie about a room or on the grass without any regard for their own safety, and considering the degree to which they expose themselves, it is curious to note how rarely they suffer from rheumatic and catarrhal affections. We have already referred to the fact that they are at times very suicidal, and in other ways they often exhibit impulsive states, in which they become dangerous or destructive, requiring for the time special care.

The issue of secondary dementia is death, for recovery, of course, is impossible. The treatment can only be directed to the nourishment of the patient, keeping him suitably clad, and placing him in circumstances to prevent others injuring him. Much can be done by careful attendance to promote habits of cleanliness and to prevent disturbances, but here treatment ends. Occasionally these people are very noisy at night, but this does not seem to affect their condition, for they live on for years in this state, and it is only occasionally and for special reasons that sedatives are required.

Pathology.—The chief changes in secondary dementia are alteration in the size of the vessels owing to thickening and distension, the thickening being most marked in the deep layer, and in the walls of the vessels are fatty granules and hæmatoidin. The peri-vascular canals are enlarged. The changes in the cells may be described as deficiency in the number of pyramidal cells, and a want of distinctness of outline and branches, the nuclei being large, but changed in form, and only capable of slight carmine staining. We have already referred to the troublesome diarrhoea that is so prominent a feature in this phase of insanity, as is also the case in the dementia of the last stages of general paralysis, a symptom not to be wondered at when we point to the bowel-lesion that often accompanies these conditions. These lesions are usually found in the colon, and in the jejunum, and probably result primarily from nerve-degeneration; we find, in fact, patches of ulceration so extensive at times as to resemble a honey-comb network. The edges are occasionally

slightly raised, and perhaps, but at other times, they resemble punchings-out of the mucous membrane, covered with a little yellowish loose gelatinous material. These ulcers do not resemble those found in enteric fever, nor are they as a rule found in the same part. The descending part of the colon is most subject to these, and next to it is the jejunum. Even where the stage of ulceration has not been reached there are patches of redness and submucous ecchymoses, forming an early stage of the degeneration (*St. Barth. Hosp. Rep.*, vol. xvi.).

Senile Dementia.—This form which is simply an exaggeration of the decay of the system from advancing years, at times places patients in very dangerous positions, and necessitates their confinement in an asylum. The chief symptom is loss of memory, confined especially to the memory for recent events, though they may remember what happened long ago very well. Such people undress themselves, or get up at all hours, forgetting the sequence of time, and are of course quite incapable of keeping engagements. In true senile dementia there is always bodily decrepitude, whereas in the dementia resulting from the disease, and not from the natural decay of tissue resulting from age, there may be very good bodily condition, and the subjects of the dementia may be able to employ themselves usefully under supervision. One meets with many persons where loss of memory is the chief or only sign of disease of the brain, and this may be in persons under fifty or sixty years of age; but these are not cases of senile dementia, they are in a primary dementia, the result of premature decay of a certain organ of the body. In true senile dementia there is incapacity for storing up new impressions, the nutrition of the brain being barely recuperative and not capable of leading to development. The presence of hallucinations and delusions is not infrequent, and the identity of people is confused whilst it is by no means uncommon to meet with suicidal attempts probably connected with fatty affection of the heart. The age at which senile dementia begins varies; as a rule, it is not expected before sixty, and is generally seen between sixty-five and eighty.

Pathology.—The post-mortem appearances point to general atrophy and degeneration of all the tissues of the brain. Of the coarse kind there are hardening of the cranial bones, and frequently disappearance of the diploë. Thickening of the membranes with fluid in the meshes of the pia, and thinness of the convolutions with widening of the fissures. The vessels

at the base, especially the basilar, carotids and arteries in the fissure of Sylvius, are atheromatous and degenerated. Microscopically, the walls of the vessels are often found to be greatly thickened, and there are miliary aneurisms with atheromatous and fatty degeneration round them. The most notable changes are in the nerve cells of the cortex, especially in the frontal and central convolutions. In many places no normal-looking cells can be found, often there is an accumulation of brown pigment granules, or of small round, fatty particles. Many of the cells seem to be altered in shape, and the nuclei pale and indistinct, or broken down into shapeless masses. The nerve fibres of the cortex as well as the processes of the nerve-cells take part in the general disintegration.

Dementia Paralytica is a term frequently used to designate the last stage of general paralysis in which some of the symptoms of secondary dementia are found in a very decided prominence. But the use of the term to signify the very peculiar form in which general paralysis terminates is doubtful in its application, inasmuch as there is a combination of muscular and mental impairment, with other symptoms often of a maniacal character up to the very last, that seems to take it out of the category of the ordinary forms of dementia.

For further information on the various forms of dementia, we may refer the reader to the standard works of Bucknill and Tuke, Griesinger, and Krafft-Ebing, also to Papers in the *West Riding Asylum Reports*, and to Dr. Clouston's address in the *Journal of Mental Science*, Oct. 1888.

For an interesting case of Senile Dementia, with miliary aneurisms in the pia mater, reported by Dr. Howden, see *Journal of Mental Science*, Jan. 1875, p. 587. T. CLAYE SHAW.

DEMENTIA ACCIDENTALIS (*de; mens; accidens*, from, *accidere*, to happen), **DEMENTIA ADVENTITIA** (*de; mens; adventitius*, coming from abroad). Terms for insanity occurring in a person who has always possessed healthy reasoning power.

DEMENTIA ACUTE (*acutus*, sharp, violent, or severe). A term wrongly employed for cases which are really instances of Melancholia cum stupore (*q.v.*); also a synonym of Stupor, Anergic (*q.v.*).

DEMENTIA AGITATA (*de; mens; agito*, I stir up). Krafft-Ebing's form of secondary or sequential dementia in which occasional outbursts of excitement occur.

DEMENTIA AFFECTATA (*de; mens; affectatus*, studied). The delirium of active drunkenness.

DEMENTIA ALCOHOLIC (*de; mens; alcohol*, from Arab. *al*, the; *kohol*, anything finely disintegrated). The weakness of mind produced by the excessive use of alcohol.

DEMENTIA APATHICA (*de; mens; a, neg.; πάθος*, a suffering.) The form of dementia in which the patient takes little or no notice of surrounding things.

DEMENTIA APOPLECTICA (*de; mens; ἀποπληξία*, from *ἀπό* and *πλήσσω*, I strike). The progressive weakness of intellect which not infrequently supervenes on an apoplectic attack. (See POST-APOPLECTIC INSANITY.)

DEMENTIA CHOREICA (*de; mens; χορεία*, a dancing). The weakness of mind produced by chorea. (See CHOREA AND INSANITY.)

DEMENTIA CHRONIC (*de; mens; chronicus*, long continued). The condition which ultimately occurs in the progress of other forms of insanity. A synonym of Dementia, secondary or sequential (*q.v.*)

DEMENTIA EPILEPTIC (*de; mens; ἐπιληψις*, from *ἐπιλαμβάνω*, I seize or lay hold of). The slow mental deterioration which supervenes on a prolonged series of epileptic seizures. (See EPILEPSY.)

DEMENTIA NATURALIS (*de; mens; naturalis*, natural). A synonym of Idiocy.

DEMENTIA ORGANIC. The form which results from gross organic disease of the brain, such as cerebral hæmorrhage, embolism, thrombosis, ramollissement, tumours, hydatids, pachymeningitis, &c.

DEMENTIA PARALYTICA (*de; mens; paralyticus*, from *παράλυω*, I disable). A synonym of General Paralysis of the Insane. A term largely used on the Continent for this affection, but not adopted by British alienists.

DEMENTIA PARTIAL (*de; mens; partio*, I share). The form of incomplete dementia in which, although the mind is weakened, there is too much intelligence left to allow of the use of the term "dementia" without qualification.

DEMENTIA PRIMARY (*de; mens; primarius*, of the first rank). A term sometimes used for the form which occurs more especially in young persons of feeble mental development, often as an immediate result of mental shock. (See DEMENTIA.)

DEMENTIA SECONDARY (*de; mens; secundus*, second), **DEMENTIA SEQUENTIAL** (*de; mens; sequor*, I follow). Dementia following acute or prolonged mental disease, such as mania and melancholia.

DEMENTIA SENILIS (*de; mens; senilis*, aged). The failure of mental powers which accompanies old age. (See DEMENTIA.)

DEMENTIA TOKICA (*de; mens; τοξικόν*, from *τοξέω*, I shoot at with an arrow and so slay; the meaning of anything deadly or noxious came later to be applied to *τοξικόν*, and it finally acquired the special signification of any poisonous or deadly influence). Dementia produced by the long-continued and excessive use of alcohol, opium, Indian hemp, &c., as well as the fatuity which sometimes accompanies chronic plumbism.

DEMISSIO ANIMI (*demissio*, a sinking, from *demitto*, I let down; *animus*, the mind). A term for depression of spirits.

DEMONIA. (See DEMONOMANIA.)

DEMONIACAL POSSESSION. (See DEMONOMANIA and WITCHCRAFT.)

DEMONOLATRIA (*δαίμων*, a devil; *λατρεία*, worship). A form of insanity in which the patient worships a demon or devil.

DEMONOMANIA (*δαίμων*, a demon; *μανία*, madness); **DEMONOPATHY** (*δαίμων*, a demon; *πάθος*, a suffering).

Definition.—Esquirol, to whom we owe the best account of demonomania, observes that if the primitive meaning of the word had been retained, the term "demonomania" might have been given to religious melancholia; the first variety or species being theomania, the second cacodemonomania, the latter embracing those patients who believe themselves to be possessed of the devil, and who fear eternal perdition.* Esquirol did not dare to make this innovation, as the word was already appropriated—that is to say, it is always used in a bad sense instead of a good one, as among the ancients. Hence we can no longer make it include those patients who believe that they are the Deity, or imagine themselves inspired by Heaven.

Frequency.—If demonomania is a term rarely used in our asylums, it is not the less true that many patients labour under this form of mental disease.

Symptoms.—In some cases the symptoms are of a much more definite character than in others. We have seen men labouring under the delusion of demoniacal possession, whose agonies were of the most terrible description, and who answered in every respect to the descriptions given of those unfortunate self-accusing wizards or witches who were burnt at the stake, firmly believing that they were what their judges charged them with being. Some patients, by constantly dwelling on the frightful idea, have it re-

flected in their countenance, their physiognomy suggesting an uncanny personality, which would have inevitably sufficed for their condemnation in the old days of witchcraft.

In a milder form, but sufficiently dreadful, we see any number of patients who believe themselves condemned to eternal damnation, the remarkable fact being constantly observed that it is the good people who are the most liable to this delusion; while those who might have been supposed to merit it, do not fall into this form of mental disorder. The "miserable sinners" of our asylums come from the ranks of the pious. The real sinners, if they come to the asylum at all, are as a rule illustrations of very different forms of insanity.

It is customary to class zoanthropia as a variety of demonomania. The morbid mental condition which assumes a definite delusion in regard to an evil spirit, is no doubt closely allied to that which embodies itself in an imaginary animal. The change of personality—the complete transformation—is common to both. How far evolution accounts for this retrograde conception, and how far the ancient myths in regard to men assuming the form of animals are explained, are questions upon which we cannot now enter.

In recent times there have been epidemics of hystero-demonomania; one of these occurred in 1857, and lasted several years, at Morzines in Upper Savoy. In the first instance two little girls, pious and precocious, had convulsive attacks, which were reproduced among other children, and occasioned widespread alarm. M. Constans, the Inspector of Asylums in France, at that time made an inspection on the spot, and published a medical report of the phenomena which he witnessed, or heard described (1861), to which we are indebted for what follows.

There were 64 convulsionnaires. Their ages ranged from eight to fifty-eight, the largest number (14) being eighteen years old. There were two classes—the first comprising those who were constitutionally hysterical; the second those whose hysteria was accidental and recent. The former were thin, and looked altogether ill. The latter, on the contrary, with the exception of a few suffering from amenorrhœa or chlorosis, were in good health.

The character of the persons attacked by this epidemic was changed; their affection for family, friends or religion, was succeeded by indifference, or even dislike. Their expression was altered; their sleep uncertain and light; their appetite bad. Those who were before industrious could

* "Des Maladies Mentales." Tome premier, p. 482. 1838.

no longer fix their attention to anything; their only pleasure consisted in meeting and chatting together, or playing at cards. The attacks when once established returned several times in the course of the day under the influence of the slightest cause, as the sight of a stranger, a word displeasing to them, anything reminding them of religion, a spontaneous thought or one excited by colic, &c. Nothing caused an attack more surely than the assertion that the convulsionnaires were not possessed. At the commencement of the epidemic, at which time the victims were chiefly infants, there were seen the phenomena of ecstasy, catalepsy and somnambulism. When M. Constans visited Morzines, the attacks were restricted to convulsions varying only in their violence, their duration, and the greater or less amount of loquacity.

The *crisis* or fit is signalled by the occurrence of sudden yawning, when the patient is perfectly calm, pandiculations, sudden starts, and jerks of a choreic character in the arms; this is followed by rapid movements, as if from a succession of discharges; the pupil is by turns dilated and contracted, and the eyes sympathise with the general movements of the body. At this moment, the patients, whose aspect has first indicated fear, pass into a state of fury, which becomes more intense, as if the idea which dominates them caused two almost simultaneous effects—depression and excitement. The patients strike the furniture with violence, begin to speak, or, rather, vociferate, the same word being endlessly repeated. If the spectator speaks to them, they reply to his remarks, but without escaping from their ruling idea, that they are lost souls in hell. And as it is always a demon of which they are the mouthpiece, the imaginary spirit sometimes recounts what he did on earth, and what he has done since he left it for the infernal regions. Their physiognomy is expressive of their mental excitement, the neck is swollen, the face injected, with some; it becomes pale with others; the lips are often covered with saliva, which gives the idea that they foam at the mouth. The movements, which at first were limited to the upper extremities, extend to the trunk and the lower limbs; the respiration becomes rapid; the patients, redoubling their fury, are aggressive, displace the furniture, hurl chairs, stools, or anything they can lay hold of at anybody who stands by; assault them, whether relatives or strangers; throw themselves on the ground continuing their cries; roll about, striking their hands on the earth, beating

the breast, stomach, the front of the neck, and try to tear out something which incommodes them in this region. They bound hither and thither. M. Constans says he has seen two patients who, standing up as if by the force of a spring, threw themselves backwards, so that their head rested on the ground at the same time as their feet. This crisis lasts from ten minutes to half-an-hour, according to the exciting cause. If it is the presence of a stranger, especially a priest, it usually lasts until he withdraws. The convulsive movements do not, however, continue; after having been very violent they become feeble and cease, but only to recommence as if the nervous force required renewal. The pulse, the heart-beats, are not accelerated; usually, indeed, the reverse happens; the pulse is small, slow; the extremities are cold. In spite of the violence of the excitement, and the furious blows inflicted on all parts of the body, the hands remain as cold as ice. Contrary to that which is often witnessed in analogous cases, no erotic ideas mix with the demoniacal state; M. Constans was especially struck with this fact. The language is never coarse, and the gestures are entirely modest. There has never been any question, therefore, of incubi, succubi, or scenes like the witches' *sabbat*; all the patients belong, like demonomaniacs, to the second of the four groups marked out by M. Macario; some hear the voice of devils, much more frequently these speak through the mouth of the patient. At last the movements become less and less rapid, there is a discharge of gas from the mouth, and the crisis is over. The patient looks about with somewhat astonished air, tidies the hair, replaces her bonnet, drinks several draughts of water, and returns to the work in which she was engaged at the beginning of the fit. The patient almost always denies feeling any lassitude, and does not remember what she has said or done during the attack. There are exceptions, however, and in such instances she asserts: "I know well that *he* (the devil) has said so, or done so-and-so, but it was not I; if my mouth has spoken, if my hand has struck, it was *he* who made me speak and caused the blows."

It would be impossible to present a more graphic description of an attack of hysterical demonomania.

It may be mentioned that *exorcism* was tried in some of these cases at Morzines, but without effect. In one instance, this means having failed, M. Constans resolved to try the effect of hypnotism,

the operator being the well-known M. Lafontaine. Recovery followed, and the patient remained quite free from attacks for three years. She had a relapse at that time, although not suffering from the fits; she refused to eat ordinary food, and shut herself up in the house. She could not stand on her feet or move her arms; hysterical symptoms which, on removal from home, rapidly passed away. She was again hypnotised by Lafontaine, recovered, and went into domestic service.

It should be stated that without exception these patients were *anaesthetic* during the fit. Sensations of touch and temperature were not lessened. The nasal mucous membrane and the lips preserved their sensibility; ammonia caused its usual effect. Chloroform was found not to terminate the attack. The senses, hearing and sight, so far from becoming dulled, became more acute in some instances. The taste and smell appeared normal.

M. Constans observes that the word "possession" was in the mouths of all during this demoniacal epidemic, whereas disease was the only word applicable, and should have been the only one pronounced. "The patients have a fixed dominant idea that nothing can shake; they are *possessed* by one or more demons, which they ordinarily do not see, but which they feel and hear moving and speaking within them—in their stomachs and intestines; they have illusions, visceral and sensorial hallucinations, which in time cause delusions almost identical in all, the differences being due only to age and the individual constitution. These delusions cause frequent convulsions and violent delirium, during which patients may lose their identity. It is succeeded, however, by mental depression, affecting the sentiments in a marked manner, but not the reason outside the dominant idea."

Treatment.—Where this form of mental disease occurs under those conditions in which it is likely to assume an epidemic character, isolation is absolutely necessary to prevent contagion. It is also of the greatest importance to remove the unhealthy physical or mental atmosphere by which such patients have in all probability been surrounded. The special treatment required must in most instances be directed to the hysterical character of the disorder.

THE EDITOR.

[References.—Descriptions of attacks of Dæmonomania or Demonopathy are given by Calmeil in *De la Folie considérée sous le point de vue pathologique, philosophique, historique et judiciaire, depuis la renaissance des sciences en Europe, jusqu'au dix-*

neuvième siècle, 1845. It includes attacks of the Nuns of Cambrai, the Nuns of Saint Ursula at Aix, those of Loudun; Louviers; Elfdalen in Sweden. *Rélation sur une épidémie d'Hystéro-Démonopathie en 1861, par le Docteur A. Constans, 1863.*]

DEPREHENSIO (*deprehensio*, a seizing, from *deprehendo*, I seize). An old name for Catalepsy.

DEPRESSION, MENTAL. (See MELANCHOLIA.)

DEPRESSION, NERVOUS (*depressio*, from *deprimo*, I press down; *nervosus*). A term applied sometimes to a morbid fancy or melancholy of temporary duration.

DEPRESSION, VITAL (*deprimo*; *vita*, life). A term which has been used to describe the fatal or very serious depression of the powers of life produced by a sudden shock, physical or mental.

DEPRIVATION OF THE SENSES. (See IDIOCY.)

DERANGED (Fr. *déranger*, to disarray). A popular term for one insane.

DERANGEMENT, MENTAL (*déranger*, to disarray; *mens*, the mind). A term for the different forms of insanity.

DESANIMANIA (*de*, down; *animus*, the mind; *mania*, madness). Insanity with mental defect. Mindless insanity.

DESIGNS.—Insane persons may apply for registration of, and copyright in, Patents Acts, 1883–8, sec. 99. (See PATENTEEES, INSANE, *infra*.)

DESPAIR (*despero*, I am hopeless). A condition of distressful and terrible hopelessness.

DESPONDENCY (*despondeo*, I give up). A loss of heart, mental dejection, the giving up of hope. Melancholy.

DESTRUCTIVE IMPULSES AND ACTS.—1. **Definition and Symptoms.**

—Destructive acts, the result of impulse, or *unpremeditated* violence, as distinguished from *designed*, are met with in many forms of acute and chronic insanity. They include homicidal and suicidal acts, destruction of furniture and clothing, self-mutilation, stealing, and dangerous exhibition of passionate excitement. They are most frequently met with in imbecility and epilepsy, and much more generally in women than in men. In not a few cases heart disease is present, or at any rate a very irritable condition of that organ, accompanied with rapid action. The chief feature is the suddenness of the action and the absence of anything like sufficient cause for the explosiveness of the fury. Patients often describe themselves as having all at once an irresistible feeling that they must "do something," and they experience relief after the commission of the act. Mental stupor, or so-called "acute dementia," especially

when accompanied by masturbation, is particularly liable to outbursts of explosive action, generally of the suicidal kind, and on this account it is a particularly dangerous form of insanity, because people are apt to be put off their guard by the demented look of the patient, but a typical illustration of the form in which it is found is seen in the following short history of a patient, who ordinarily was well-behaved, quiet and charming in manner, though at times she was seized with ungovernable fury. She herself described her state as a sudden feeling of pain and fulness in the cardiac region, with a violent and irregular thumping of the heart, immediately after which a red colour seemed to appear before her eyes, and then she felt an irresistible inclination to smash furniture and glass, and to destroy herself. After acting in this way she became pale and exhausted, and her pulse quieted down. She showed many signs of the epileptic temperament, but she never had a distinct epileptic seizure. There is no doubt that these sudden impulses often take the place of an epileptic fit, the condition being then one of "marked epilepsy." In rheumatic insanity, when there is valvular heart disease, destructive impulse is common, but perhaps the most impulsive and destructive are found among the masturbators. In acute insanity either of the maniacal or melancholic form, *impulsive* acts are met with, but they are not so common in these forms as in the *persistent* attempt at destructive acts. Destructive acts of the non-impulsive variety are mostly met with in general paralytics and persons in a state of chronic dementia. There is no rule to go by, some will tear their clothing by day, or destroy anything they can get hold of, whilst at night they do not interfere with their bed-clothes; others are destructive both by day and night. They can give no reason for it, often, indeed, it would appear that their acts have lost their significance, and a man who was in the act of tearing his clothes has been heard to say that he was mending them, and was not tearing them. The change from one form of insanity to another is often accompanied by the appearance or disappearance of destructive symptoms, hence any prominent change in the mental characteristics of a patient deserves special attention.

It is well known that imbeciles and idiots are very passionate, and when they have once shown violent impulses, there is no class requiring more careful watching. Their imbecile condition is often

associated with epilepsy, and their explosive and violent acts seem to convey no sense of wrong to their minds after commission.

Circumstances under which Patients become impulsively destructive. — They are obscure. It is difficult to say of any one suffering from even a definite form of insanity that he is dangerous to himself or others, and it is equally difficult to say that he is not. Explosions of violence occur when least expected, and we may be apprehensive of bad results where we find in the issue that there was no occasion for anxiety. There is no form of insanity where they may not occur, but the most likely forms have been above indicated. Hysterical and hystero-epileptic patients are very liable to these impulsive acts, and the habit once acquired is very difficult to eradicate, so that it is of the utmost consequence to prevent a first display of explosive destructiveness, for it would seem as if, when once attempted, it is apt to recur under favouring conditions. And so it is with the suicidal or homicidal impulse—when once either has been exhibited, it is sure to be repeated if any condition of anæmia or exhaustion occurs. Statistics tend to show that about 22 per cent. of those who become insane develop destructive habits. It cannot be too strongly insisted upon that persons may be the reverse of melancholy and yet subject to a suicidal impulse; and that, in fact, the nature of a delusion has no necessary connection with destructive habits, and that, therefore, such habit is not a consequence of a brain thought in the same way as in the sound mind a certain conclusion results from certain premisses, but that it is as much a sign of disease as a delusion is.

Medico-legal. — From a medico-legal point of view destructive impulses are always interesting, for they may occur as the first sign of an attack of insanity—perhaps for a time, more or less long, the only one—and there may be no subsequent attack, or the other symptoms may be long deferred. In any case where a sudden, unprovoked attack is made, for which there is no object, it is always advisable to examine the family history for hereditary taint of epilepsy, or heart disease, and if possible to keep the person under examination for some time, for if the act was due to an insane impulse, it is pretty certain that other corroborative signs will be manifested. A single impulsive, violent action due to anything but drink is rare. Suicidal and homicidal impulses are often connected in the insane, but there is no *necessary* clinical connec-

tion between the two; we see homicidal patients who take the greatest care of themselves, and again there are suicidal patients who are harmless to others. There are some who are impulsively destructive to glass and furniture, but who are quite harmless in other ways. All of these, if questioned, will say that they felt *impelled* to act in this violent way, but they cannot tell why. It may be said that they cannot reproduce the train of reasoning by which they arrived at their act, but, in truth, there is no such train; they acted on insane impulse, and this act was equivalent to the sudden explosiveness shown in the incoherent sentences of a person in a state of acute mania. It is not always possible for a sane man to give reasons for sudden muscular actions he performs. If, then, this is so in a healthy mind, how can we expect the insane man to always have reasons for his sudden acts? The legal mind seems to be unable to understand this.

It is generally found in asylums that impulsive people write the best letters, and judging from some sent in by the worst and most impulsively violent of the patients, it would seem that these victims of moral insanity (in the form of *manie sans délire*) have very rational existences as a rule, but that they are liable to the onset of the impulse at any moment. From the coherence, freedom from delusions, and general good conduct of these people in their quiet intervals, it would be impossible to return them as insane, and it is only from experience of the suddenness and violence of their actions that they are kept under certificates. It is noticeable, however, that in the majority of instances the intervals between the impulsive acts become shorter, and the patient develops either a continuous maniacal condition or lapses into one of dementia. In all cases where insane impulse is brought forward as excuse for a crime, the antecedents of the patient should be well inquired into, especially with reference to hereditary taint, gouty or alcoholic history in the parents, wounds or injuries to the head, and the epileptic temperament. It would appear that this form of insanity is more connected with the strumous diathesis than any other. The length of duration of the impulsive state varies—as a rule, it is brief, but it may be considerable, extending to hours or days, after which the patient relapses into the former quiet state; a condition of this kind borders closely upon what might be called a short attack of mania, but the difference in the onset and the

termination is well-marked, and the characteristics of a true maniacal attack are wanting, the symptoms more resembling those of a person in a prolonged state of bad temper.

Instances occur where the impulsive condition lasts for years; in fact, constituting the insanity of the patient, it being understood that in the intervals he is quiet and probably free from delusions. The destructive acts that occur in chronic insanity, or in secondary dementia, are very tiresome in their nature, and it is not always easy to explain their cause. That a person in a state of acute insanity should be destructive is easy to comprehend, but it is difficult to make out the *rationale* of the destructive acts of the chronic insane, for it is certain that they do *not* always spring from delusion or habit. No more reason can be given for this destructiveness than can be for what one sees most in male patients, namely, constructiveness, a feature very remarkable, for in it there is often marvelous ingenuity displayed in *making absolutely useless things*, objects which are of no possible good and can serve no useful end. Just as the destructive patient repeats the same destructive act to the same point with no apparent object, so does the constructive patient build up his fanciful objects to the same monotonous degree of completeness, and having finished one begin another as long as his materials hold out. The similarity between these two processes seems to indicate that destructiveness is an actual condition, *sui generis*, and not necessarily connected with either delusion or habit, as psychologists would have us believe.

Treatment.—The treatment of destructive impulses and acts varies according to the conditions in which they are found. When they are merely intercurrent phenomena of an acute insanity, the only treatment required is to take steps to prevent the patient from doing harm, trusting that the impulses will subside with the disappearance of the other symptoms. When they constitute the chief sign, attention must still be directed to the improvement of the physical conditions on which they usually depend. When they occur in chronic insanity and secondary dementia, their cure is almost out of the question. T. CLAYE SHAW.

DESTRUCTIVENESS (*destruo*, I destroy). A term for a faculty common to man and the lower animals; an impulse attended with a desire to destroy objects, in the sane under control of the will.

DETENTIO (*detentio*, from *detineo*, I hold or secure completely). An old term

for catalepsy in reference to the fixed attitude.

DEUTEROPATHIC INSANITY (*δεύτερος*, other, or the second; *πάθος*, an affection; *in*, neg; *sanus*, sound). Insanity caused by disorder of, or developmental changes occurring in, other organs than the encephalon.

DEUTEROSCOPY (*δεύτερος*, the second; *σκοπέω*, I look at). A term for the condition known as second sight. (See CLAIRVOYANCE.)

DEVELOPMENTAL INSANITIES AND PSYCHOSES.—THE DELIRIUM AND NIGHT TERRORS, &c., OF CHILDREN.—THE INSANITIES OF PUBERTY AND ADOLESCENCE.—

General Ætiological Considerations.—The course of the growth and development of the brain is marked by many dangers — and no wonder — for it is the process of bringing to perfection of by far the highest evolution in Nature, this process being constantly impeded and endangered by diseases peculiar to the period, by parental ignorance of what the brain needs, and by unhygienic conditions of all kinds. Above all, the process cannot be completed properly in very many cases because there is an adverse heredity—a true fate against which knowledge, affection and will and the command of every favourable condition are often powerless to contend. To cure the neuroses attending growth and development may be possible; but, as Wendell Holmes says, we should have begun 200 years ago. For there is no doubt whatever that the diseases specially of adolescence are mostly the result of bad heredity, if we exclude the zymotic class. Hereditary influences of different kinds develop out of potentialities, which may be regarded as invisible non-growing seeds, into actualities, *i.e.*, visible and measurable structural alterations or mal-energisings, at different periods of life in different individuals. Hereditary instability of the motor cortical centres is brought out as an actual disease very early as the convulsions of the first dentition period. Hereditary tendency towards insanity, however strong, seldom develops into a mental disease till after the period of adolescence is well on. Hereditary rheumatic tendencies show themselves early in life, while hereditary gout comes later on, and a hereditary tendency towards atheromatous arterial degeneration only comes into actual view in the period of decadence, merely anticipating in that way the normal degenerations of senility. Though adolescence is the first period of real danger of mental disease, and it is then

almost always hereditary, yet heredity comes in and causes actual insanity at every period of life. The cases where it is least potent, or has been best counteracted, are no doubt those who keep sane during a long and active life till advanced senility or motor paralysis comes on, and they then break down in mind too. In such cases it needed heredity plus arterial disease or gross lesion to produce the result. The hereditary tendency to go wrong mentally was in them so slight, that these persons might often have lived their lives out free from mental disease but for accidental complications at the end of life. In this respect senile insanity is in sharp contrast to adolescent insanity and to the developmental neuroses generally. The latter very often need no exciting cause from without or within the brain except its own process of development, the quick metabolism, and the taking on of new functions. At that period we have the evolution of new powers and faculties and the co-ordination and regulation of all the organs and functions by the higher centres in the brain cortex. A bad or a good heredity means more during development than after. Every hereditary disease of adolescence means that the law of arrest and destruction of a bad stock by organic or reproductive death is coming into operation. The hereditary potentialities of a human impregnated ovum are so inconceivable in sum and in variety, that it ought rather to be considered a wonderful thing for it ever to develop into a healthy man than that it should sometimes fail to attain an average perfection in some point. There are, we believe, certain morphological signs at the early ages which, if carefully studied, will turn out to be common to all the children and adolescents who have a liability to the neuroses—functional and trophic — of the developmental period. These have been partially recognised as the neurotic type of facial appearance and expression. There is a well-known peculiarity in the ossification and shape of the upper maxillary bones, best indicated by the form of the arch of the upper palate, which is of more far-reaching significance than has yet been recognised. In neurotic children, the mental, motor, and sensory functions of the brain are too early pushed forward. They do not wait on their trophic bases as should be the case in normal development. Function, which should follow structure, tends to get ahead of it. Motor possibilities in the cortex unduly precede the formed structure of muscles, and this applies to the lungs, the heart and the glands. We commend very earnestly to

future observers, the following among other points, to notice and accurately record in all the children and adolescents whom they attend with convulsions, delirium, chorea, rickets, epilepsy, mental disorders of any kind, scrofula and consumption:—

(1) The size and shape of the head, especially any peculiarity in development in any of the brain regions.

(2) The width between the eyes.

(3) The mobility and the mode of action generally of the facial muscles of expression.

(4) The reaction-time, mental, motor, and sensory.

(5) The state of the upper palate arch and of the osseous development generally in the head and spine.

(6) The state of the muscular co-ordination generally.

(7) The special points in function or form that are either backward or forward in development.

(8) The relative progress which the mental faculties have made, especially power of attention and observation, cognition, affection, memory, imagination and inhibition, as compared with the general growth and muscular energy.

We need hardly say that these observations in children and adolescents subject to disease will be valueless scientifically or for purposes of prognosis, education or treatment, except similar observations are made in regard to the normal and healthy with which to compare them. But with such means of scientific comparison, we are most hopeful that the physician and the parent will be better enabled to look into the future of a child and therefore to adopt prophylactic conditions and measures which as yet have not been possible soon enough to be efficient. If we could in that or any other way know the real "constitution" of the brain early in childhood, we could then surely devise means to prevent the occurrence of much developmental disease. The craving of the ancients to read a child's horoscope represented a very real and an enormously important need which the science of the future may in some degree at least enable us to supply.

The Delirium, the "Night-Terrors," and other transitory Psychoses of Children.—During dentition, children of neurotic heredity and unstable quality of brain are especially subject to convulsions, that being the prevailing neurosis under four years of age. In my experience, the same children who have suffered from the eclampsia of the dentitional periods, are those who are most subject to become de-

lirious at night, when fevered, between the ages of three and ten, and a much larger proportion of them than of ordinary children become subject to chorea between the age of ten and puberty, and to attacks of adolescent insanity, to epilepsy, to hysteria, or to the dipsomania of adolescence between fourteen and twenty-five. The two chief ways in which brain instability manifests itself in early childhood are convulsions and delirium, but they both differ in very essential ways from any sort of typical "insanity," of which the chief are that they commonly need for their production as direct exciting causes—the reflex irritation of dentition or of rickets in the one case, and a high temperature in the other. The second great distinction is that they are both transitory in character and very seldom leave nervous effects when the immediate attack has passed. The exception to this is the idiocy and epilepsy that occasionally seem to arise out of eclampsia. We have never known or heard of an attack of mania or melancholia arising directly out of febrile delirium in children, though we have known children to be left very "nervous" and excitable after a sharp febrile attack with delirium, and their sleep to be disturbed afterwards for some time by dreaming and nightmare. It seemed as if, when the habit of night delirium was established, the brain in such cases took some time to revert to its normal state of sound night sleep. It has seemed to us, too, that once a child has been severely delirious at night during a bad febrile attack, it is more subject to the same condition for some time afterwards whenever the temperature rises to even a slight extent. A bad brain habit has in fact been established, analogous to the case of the well-known proneness to convulsion after the first attack. We are talking of course of the neurotic type of children. The association of both convulsions and delirium with a febrile condition is much more common than is supposed. Henoeh does not admit dentition to be the cause of those three conditions to such an extent as is commonly assumed. He places rickets as a much more influential factor than dentition. Next to rickets he places "an irritated condition of the digestive organs."* It seems as if in certain children they may have convulsions or delirium or both together as the result of a high temperature at any time, and some children's brains are so unstable in quality that even fever is not needed for their production. Henoeh in his chapter on "The Hysterical Affections

* Henoeh's "Children's Diseases," translated by John Thomson, M.B., F.R.C.P.E. (Sydenham Soc.).

of Children," a chapter most instructive to the medico-psychologist, mentions many cases where there occurred psychological disturbances of all kinds without fever. He makes his "first class" of hysterical affections to consist of those cases in which the psychological symptoms predominate—complete cessation of consciousness, hallucinations and deliriums, *pavor nocturnus* and *diurnus*. To this category belong almost all the conditions described under the name of catalepsy or eclipsis, where consciousness is suddenly lost or at least considerably weakened, and the children remain standing or sitting with a staring look or with upturned eyeballs and sink on the floor if not caught hold of. More rarely they are able to go about in a semi-conscious condition, as in a dream, sometimes talking to themselves unintelligibly. After a few seconds—or at most a few minutes—it is over and the child feels perfectly well. Many are quite unaware they have had such an attack. Others remember the beginning of it, and others again only partially lose consciousness, so that although unable to speak they see and hear everything that takes place around them as if half asleep. He gives many interesting cases of psychoses of this character. The condition known as *pavor nocturnus* or "night-terrors" is a form of transitory child delirium that rarely occurs except during sleep. The child awakes suddenly, oftenest in the first part of the night, that is when sleep is deepest, starts up, cries, clutches at, or tries to defend itself from imaginary things or persons which it fancies it sees, trembles all over, and takes comfort in burying itself in the arms of its mother or nurse, clinging to her frantically; frequently it screams and utters gibberish, then it will gradually fall asleep, perhaps to have such a "fit" once or twice again before morning. After a few weeks or months the child ceases to have such attacks or they pass into epilepsy or convulsions, but this grave outcome is rare. Anything that rouses into premature activity the imagination of nervous children in whom the fancy is already very active may be followed at night by night-terrors, especially if there is undigested food in the stomach. No recollection of the terrors of the preceding night remains next day. This state has in it, something of dreaming, something of somnambulism, something of a "mental epilepsy" affecting the centres of special sense, and yet is different from all these. Its existence marks an unstable brain.

Ordinary Delirium of Children.—The more ordinary delirium of children

follows surgical injuries—burns especially—more than other causes, even when the temperature is scarcely raised, and accompanies attacks of pneumonia and pleurisy and internal inflammation in which the temperature is very high. Attacks of typhoid more than any other kind of fever are liable to it, and many children have it during the height of all the ordinary zymotic diseases. Its transitory nature has prevented it from receiving the attention it deserves, either as to its character or its brain significance. We are practically destitute of exact statistical facts illustrating its frequency or its relation to temperature, or to heredity. The precise psychological character of the delirium of children, too, has not received much, if any attention. In what we are to say on this subject, it will be observed that we are not referring at all to the continuous psychoses of children that are of the nature of technical insanity. We think the following division covers most of the cases from the psychological point of view:—(1) The cases in which consciousness and attention to outward impressions are only partially impaired, and where the attention can be roused by speaking to the child. The child smiles, or whispers, or speaks in an ordinary tone of voice, not quite incoherently, and it wanders mildly. It recalls and speaks of recent impressions or events, and its emotional state is one of pleasure, or at all events not one of pain. Conversation may be carried on with imaginary companions, but hallucinations are not prominent. Such cases occur commonly with a temperature of about 100° to 102°, and seldom after surgical injuries or during severe and painful inflammations. They correspond to the psychiatric condition of "simple mania." We imagine, however, that there is far less difference between the sanity of a child and its delirium, than between the sanity and simple mania of a grown-up man, looking at the matter psychologically, not clinically. If the child is under two years old, it is doubtful as to his capacity yet to have acquired abstract ideas of any kind. Watch such a child alone when well, and its conversation would in a grown-up man be a beautiful example of the automatic speech of simple mania, as it soliloquises and prattles to itself. The sort of delirium that we are describing chiefly differs from such normal monologue in having the consciousness disturbed and the power of attention markedly changed, so that it is difficult to arouse by any direct presentation on the senses from without, by reason of the vividness of the cortical representa-

tions from within. The next form of delirium (2) is one corresponding psychologically to "excited melancholia." The child talks excitedly, screams, hears terrible voices, sees frightful sights, clings to its nurse or hides under the bedclothes, stares wildly through dilated pupils at its visual hallucinations. It wants to get out of bed constantly. It is quite impossible while this state lasts to rouse normal attention, to get reasonable answers, or to get through the thick morbid layer of mere subjective representation that then overlies all the normal manifestations of mind. Painful hallucinations and a depressed emotional state are psychologically the chief characteristics of this delirium. It is most frequently seen in children with a temperature over 104° , and notably after injuries, burns, and painful inflammations affecting the peritoneum and pleura. It seldom lasts more than a few days or nights. As a transitory non-febrile condition lasting a few minutes, this psychological condition constitutes the "night terrors," and sometimes "day terrors," in very neurotic children. We would ourselves treat all such non-febrile cases as though they were "mentally epileptic," and look out for causes of peripheral reflex irritation. We would also treat them with the bromides for short periods. We have not seen, nor can we find, any account of any case of child delirium of the type of "acute mania," with the emotion of rage and tendencies to destructiveness present, but there are rare cases where a condition resembling *stupor* exists.

The suddenness with which child delirium, "night terrors," &c., usually pass off, constitutes another marked clinical difference from most forms of technical insanity. They are mostly nocturnal, and have a relationship to the lowered energising, the partial "dissolution" of brain function that is normal during the night hours. No doubt we have yet much to learn as to the connection of the psychological unconsciousness of sleep and its brain causes with these night deliriums, night terrors, and night convulsions of children. The brain change that causes any mere state of "false consciousness" as compared with that which gives real consciousness, is at present unimaginable by us, and the physiologists leave us absolutely in the dark on the subject. Delirium of any active kind does not seem to be a common or troublesome symptom in children's hospitals. One of the oldest nurses in our Edinburgh Hospital tells us that the delirium with hallucinations and fears is especially rare, and

that in her experience it bears no constant relationship to the temperature of the patient suffering from it. Many of the patients with very high temperatures—far over 105° —not being delirious at all. "It depends on the child"; in other words, it is the hereditary quality of its brain, not known to the nurse, that determines its liability to delirium at any abnormal temperature. We can find no trustworthy information or statistics to show the precise liability of children to become delirious, nor to indicate the age at which their brains are most commonly upset in this way. But we cannot dissociate the brain condition that produces the delirium of children, febrile or non-febrile, from that out of which arise the eclampsia of the dentitional periods; the chorea which in some form or degree, Henoch says, is one of the "most common" of the neuroses between the ages of six and twelve, the epilepsy which sometimes begins in childhood, the "hysterical" affections of that period, the rickets or the idiocy which then arises. The mental, the motor, or the trophic functions may, one or all, be affected in the same child at the same time, or at different periods; or one child may have only one unstable system in its brain. Nay, we must look further, and we shall see the connection in many cases by heredity or by continuity of one or all those child neuroses, with the insanity of puberty and adolescence, of which we shall now go on to treat.

The Insanities of Pubescence and Adolescence.—General Considerations in Regard to Development.—The prevailing qualities and the dominant characters of a human brain are greatly different in the periods of childhood, of puberty, of early adolescence, and of the later period of adolescence. At each of these periods the brain is specially receptive to different impressions, and its dynamic and trophic activities differ. These physiological and psychological differences are all represented by the different diseases to which the brain is liable at different ages. At puberty and adolescence, with one of the diseases of which we are now to deal, the affective faculties, the social instincts, the altruistic organic cravings, the delight in poetry and romance, the sense of duty, all arise in so different and definite a form as compared with their previous existence, that we must conclude that great tracts of brain substance, which had before lain dormant, have now awakened into activity. Just as the centres of respiration had grown and developed so far as their structure is con-

cerned, but never had energised at all till birth, so with the encephalic tracts that subserve these adult and reproductive functions during the period before adolescence. Before that period there had been a general psychical likeness between the sexes which then disappears. Individualities and idiosyncrasies then spring up. In the male sex the mental development after that era is more in the direction of energising, of cognition, of duty, of idealising: in the female sex it takes the directions of emotion, of the protective instincts, of a craving for admiration and worship, of the mental creation of an ideal "hero" to be loved and worshipped in return. These mental changes do not take place all at once in either sex. It is not sufficiently realised how long it takes to create perfect reproductive power after the reproductive nisus has shown itself, after the organs have been considerably developed, and after some reproductive capacity has existed. Puberty may be put down as arriving at the age of fourteen in the female sex and at fifteen in the male sex, striking an average for this country. But the process of reproductive development having begun then, goes on till its full completion at the age of twenty-five. Three classes of facts demonstrate this. In the first place, the physiologists tell us that the osseous system does not attain its completeness till about twenty-five; that the glandular, and alimentary, and respiratory systems do not till then arrive at perfection, and we know that the beard and sexual hair do not appear in full perfection till then, and that till then a balance has not been established between ingestion and waste; between katabolism and anabolism. Secondly, artists, poets, preceptors, and psychologists all unite in saying that till then perfect beauty of form, perfect emotion, judgment, or imagination, and a full capacity to appreciate the highest form of literature cannot be attained. And, lastly, Dr. Matthews Duncan, with his hard statistical facts, shows that a woman has not till then a full potentiality of motherhood, or to put it more scientifically, that "the climax of initial fecundity" is not reached till about the age of twenty-five years. In short, the organism is not perfected in all its higher points till then, and this perfection comes along with perfect reproductive power in the order of nature. The parent attains the full measure of its organic potentiality before it takes the first stage towards retrogression and death by dropping offspring. There can be no doubt that it is during the decade of development that in man

the greatest of the hereditary qualities come out and the most dangerous of the hereditary defects show themselves. Nature is then striving with all her might to evolve a perfect organism out of which the germs of another to take its place shall be produced. The hereditary influences and tendencies that all the former generations have transmitted to a man or a woman come then most fully into play. It is then a man suffers, it may be for the sins of his great-grandparents, not only running the risk of his parents' inherited tendencies and of the mysterious accentuation in the offspring which the same evil tendency in the two parents produces; but probably in some degree of his ancestors' acquired peculiarities as well. Not only so but atavism comes in, and he runs the risk of peculiarity or disease that has lain dormant in his immediate ancestry for a generation or two. We lately had evidence of the clearest kind put before us that insanity had appeared in three families of the same generation with a common ancestor, of the same kind as a great-great-grandfather had suffered from, the three intervening generations having been quite free from mental disease. The higher neuroses, the more subtle brain diseases, the mental peculiarities, and even some of the more terrible of the trophic diseases, such as pulmonary consumption, unquestionably select the period of adolescence for their real first appearance. It is proved by statistics that the last five years of development from twenty to twenty-five are those most liable to mania and to neurasthenia, and it is at that age that the mortality from pulmonary phthisis attains its maximum (James), which means that "as far as age is concerned, the period at which lung-tissue nutrition is least able to resist the inroad of the bacillus is precisely the period at which the excessive nutritive power necessary for growth has been expended."* We should, perhaps, put it in a slightly different way as to both insanity and pulmonary consumption. We should say that it is during the end of the period when such functional perfection as each individual is capable of is being attained, that its hereditary defects come into actual view as regards the mental, the reproductive, and the trophic activities of the brain. On the threshold of full reproductive life there is thus always the liability to a breakdown. The organisms which break down in this way are so pronounced by natural law to be unfit to reproduce or to live. The tyranny of their

* James on "Pulmonary Phthisis," p. 3.

heredity has so doomed them. Not that they all die mentally, reproductively or bodily. The *vis medicatrix* and suitable measures of treatment may and do save some of them. It is possible that the same principles apply to acute rheumatism and other trophic diseases.

Statistics.—We found that out of 1706 non-congenital admissions to the Royal Edinburgh Asylum, 230 were between fourteen and twenty-five, of this 230 only two were between fourteen and sixteen, only 22 were between sixteen and eighteen; the next three years, the eighteenth, nineteenth and twentieth, were still low in regard to insanity production, for only 49 of the cases occurred at these ages. It was in the next five years, from the twenty-first to the twenty-fifth inclusive, that the majority of the cases occurred, viz., 157 of the 230, or an average of 14 per cent. each year as compared with an average of 6 per cent. for each of the first five years of adolescence. In fact a comparison with the liability at other ages during the past five years in the admissions to the asylum shows that there is no period of life when *uncomplicated* insanity occurs more frequently than during the completion of the physiological era of adolescence from twenty-one to twenty-five.* As regards the two sexes our statistics seem to show that “adolescence does not appear to be so powerful an upsetter of mental equilibrium in women as in men.”

Heredity.—In regard to the influence of heredity in the production of the insanity occurring during adolescence we found that a hereditary predisposition to mental disease or to some of the neuroses was present in 45 per cent. of the whole number. It is very difficult to get family histories of insanity in most cases, and you may almost multiply by two those you get if you want any approximation to the truth. Our proportion of hereditary predisposition in the asylum as recorded in our case-books is only 23 per cent. as compared with the 45 per cent. among the adolescents in whose cases no special pains had been taken to ascertain family histories. Since we expressed the above opinions seven years ago, we have given very special attention to this matter of heredity both in its relation to the occurrence of the insanity of adolescence and in regard to the dementia which is its issue in 40 per cent. of the cases; and we are prepared to state very strongly as the general result of our experience and careful inquiries into family histories of individual cases in which we had the oppor-

tunity of getting reliable facts, that practically, without any exception, the typical clinical case of adolescent insanity which we are about to describe has in his or her ancestry, immediate or collateral, one of the following neuroses in the following order of frequency, viz.:—(1) insanity; (2) neurotic instability; (3) intemperance amounting to dipsomania; (4) epilepsy; (5) hereditary tuberculosis; (6) general diseases of the nervous system; and (7) congenital imbecility or idiocy. Bevan Lewis* in accepting and giving an admirable description of adolescent insanity as a distinct form of mental disease which the writer was the first to name and describe, confirms our original statistics as to the influence of heredity in the case of females, finding in them 40 per cent. of heredity to insanity alone, but he found among the males only 27.2 per cent., this being actually less than his average of such heredity for all his 3470 cases. We are quite certain that there is a fallacy here. In our experience the disease in males is equally hereditary as in females. One cannot make careful inquiries into almost every case of adolescent insanity, as we have done (whenever practicable) of late years, both in private practice among the rich, where it can often be got very accurately, and in patients of the richer class coming into the Royal Edinburgh Asylum, where good family histories can also be obtained, and be altogether mistaken on such a point. The knowledge gained in this way is usually far more reliable in many respects than the official returns in our Asylum Case-books. We know this from experience of both.

Meaning of the Disease.—Looked at in one way, these neurotic failures during adolescence may be regarded as one of Nature's ways of stopping the propagation of a breed unfit for the struggle of life. In the upward course of evolution man's brain in its higher functions has hitherto been the highest point towards which all else in organic nature seems to have tended. It is the superstructure, without which all the other results of evolution would have been unfinished and would have had no apparent meaning. The brain cortex of a civilised and educated human being is by far the highest product of evolution. In proportion to its grandeur of function, to its immeasurable complexity and delicacy, and to its almost inexhaustible capacity, it is liable to disturbances in structure and function. Our means of gauging its intimate structure and capacity are as yet so imperfect that

* Clouston's "Clinical Lectures on Mental Diseases," 2nd edit. p. 528.

* "Text-book of Mental Diseases," Bevan Lewis, p. 345.

we can apply no direct tests to measure slight divergences from what is normal mentalisation, yet such divergences may make all the difference between sanity and insanity. As it is receptive and reactive to impressions from almost every substance, and every energy, and every influence in nature, it must on that account be so far perfect in its own development and capacity if it is to do its work rightly. It must at all events attain a working perfection in regard to its own nutrition and repair, to its receptiveness, to its reactivity, to its due co-ordination of different parts and functions in regard to both differentiation and solidarity, and to its inhibitory powers. Its energising must be stable, and yet the nerve tissue must not be too stable, otherwise its highest functions would be deficient; for a nerve cell that would not let out its stored-up energy readily on an appropriate stimulus would be almost useless. Even the change from a slightly acid to a slightly alkaline reaction in the fluid round its cells would, we have reason to think, destroy all higher brain and mental action.* To attain all this "working perfection" a good heredity is certainly needed, and also reasonably good conditions and environments during the stage of growth and development. Diseased action during the early growth of a brain means idiocy, dwarfishness, and paralysis, conditions rendering its owner utterly unfit for the struggle for existence, asexual and unfit to reproduce. Disturbed development at an after stage means convulsions in infancy, or chorea, or the insanity of adolescence, all of which may end in bodily, mental, or reproductive death, but not necessarily so. To show what we mean by a concrete example—we knew the case of a married couple, the father being partially paralytic for twenty years, but mentally energetic above the average for the first fifteen of these, though irritable and wanting in self-control, the mother being out of a nervous and partially insane stock, though herself sound and energetic in mind. They had seven children, of whom three, two boys and a girl, were energetic in body and mind, though with rather marked peculiarities. Two other boys and a girl were not counted technically insane, but the girl had severe convulsions during dentition, was hysterical after puberty, was neurasthenic towards the end of adolescence, and was always asocial and peculiar, unmanageable and ill to get on with. One of the boys turned out a dipsomaniac,

and drank himself to death; in other words, he was wanting in the inhibition necessary to live in modern civilised society. The next boy was simply morbidly "lazy." Nothing would rouse him to exertion. He seemed to have not enough innate power of energising to enable him to earn his living in any way. When severely pressed and roused, he would break out into short bursts of utterly uncontrollable passion. The last boy had marked and severe delirium, amounting psychologically to excited melancholy when suffering from typhoid at ten, had a maniacal delirium when suffering from an attack of acute rheumatism at fifteen, became at twenty rather religious in sentiment, full of impractical notions of social regeneration and setting the world straight, and in his general conduct reckoned "a fool" among his friends. In all probability he practised masturbation. At twenty-one he had an attack of mania characterised by the symptoms which we shall describe as specially those of typical adolescent insanity. This maniacal condition, after many periodic remissions, gradually passed into secondary dementia or mental and reproductive death, with periodic maniacal exacerbations corresponding to the periodic physiological heightening of the reproductive nisus. There are very few grandchildren in the family, and in all probability Nature will bring the stock to an end, except it gets renovated by sound marriages—if, indeed, such complete restoration is possible. The brain history of this family shows the effect of heredity in various ways on the higher brain functions of the offspring of a neurotic couple, from mere eccentricity up to mental death, but all tending towards bringing the stock to an end from social or mental causes.

Symptoms.—The forms of mental disease that occur at puberty and adolescence are almost identical clinically, so that the same description applies to both. Of course, the prevailing ideas and delusions of the disease at puberty partake more of the nascent ambitions and longings of manhood and womanhood, while at more advanced adolescence there is more of formed manly and womanly character. But first let us glance at those mild attacks of mental disturbance at this time of life, which are not commonly reckoned as having any real connection with insanity, yet which unquestionably are of the same nature. One of the most puzzling and troublesome of such mild psychoses is that which assumes the form of exaggerated defiance of parental and school authority with morbid "self-will."

* Roy and Sherrington, *Journal of Physiology*, 1890.

Moral restraints and those inspired by authority are equally set at naught, nothing "can be done" with youths and maidens during such attacks. "Nothing can be made of them;" they are the despair and distress of parents, guardians, and schoolmasters. They will not get up in the morning, nor will they do any work, or they even do daring acts of destruction, tear books, break furniture, threaten violence to themselves and others, or go and buy all sorts of useless articles without having money to pay for them, or they leave home without any reason, or take to purposeless deceit and lying, or do scandalous things in bravado, and yet all the time are not delirious or maniacal, and give the impression to those about them that they "could help it" quite well. In fact they appear to be under the influence of a transitory vice or bad temper. When carefully studied they can usually be distinguished as really under the influence of a morbid brain condition. In the first place they are changed from their natural selves, and that often suddenly. (2) Their expression of face and eye has changed, and become allied to the expression of insanity. (3) Their sleep will usually be found to be impaired. (4) The tongue will usually be found to be white, the stomach, appetite, and bowels to be more or less disturbed. (5) They become unsocial. (6) They lose flesh. (7) These have high arched or V-shaped hard palates. (8) Above all, their peculiarities come on and pass off or remit periodically, thereby exhibiting one of the great characteristics of adolescent insanity, and showing the relationship of such attacks to the normal periodic recurrence of the sexual and generative functions. Infinite anxiety would be saved were such attacks looked on in the light of brain disturbance, when this is really the case, and were they treated from the first on medical principles. The usual harsh and punitive treatment does little good and often much harm. If one inquires into the family history of such cases, one will usually find a neurotic heredity. When we are satisfied that the mental and moral changes are really of the nature of disease, the patient should be taken from school or occupation, should usually be sent from home to live for a time in the country under kind and firm companionship, with medical supervision. Much exercise in the fresh air should be taken, and a large quantity of milk and unstimulating but supporting and fattening diet should be given. Bathing is usually an excellent exercise and means of medical treatment combined. Self-control is not quite lost in such cases, it is merely im-

paired, and means should be taken for its being strengthened by moral means. Medically the bromides are often very useful. We have known many such lads and girls get quite over such attacks of mental and moral perversion, and develop into healthy and useful men and women, though in many other instances such attacks are the precursors of mania, or end in permanent "twists" mentally and morally, eccentricity, criminality, habits of masturbation, and they are the beginnings often of a true development of insanity, evolved through heredity without exciting cause, a real *primäre verrücktheit* or a *paranoia*. We have no doubt that many of the suicides that occur among school boys and girls are the result of such psychoses not amounting to recognised or technical insanity, especially if they have been harshly treated, as they are apt to be. Fear of consequences is usually absent, and a morbid, unreasoning impulsiveness is commonly present.

But passing on to technical insanity occurring at this period of life. What special form does it assume? All cases are not alike, but in 78 per cent. of them the symptoms are those of mania, to which the following general description applies, while in the other 22 per cent. the prevailing symptoms are melancholic, delusional (paranoic), or stuporose. But whether maniacal or melancholic, the tendency to remission and to periodic recurrence is met with in almost all the cases.

An attack of typical pubescent or adolescent insanity in either sex is usually preceded by mental and bodily symptoms that do not of themselves constitute mental disease. The most constant prelude in our experience is a period of low spirits, of diminished energy, lessened intensity of emotion and action, or of conscious "nervousness" or want of interest in life, lasting for weeks or months in different cases, and tending to be remittent in character. In the female sex the accentuation is either coincident with menstruation, or it immediately precedes or follows it. While this state lasts, life seems dreary and uninteresting, the social instincts are lessened, the appetite is diminished, and sometimes the sleep is impaired; but in other cases the patients sleep too long, and will not get out of bed in the morning. The ideation, though not apparently far wrong, yet is apt to be fanciful, tending to hypochondriacal notions, and to morbid self-consciousness. Both sexes sometimes think themselves in love, the object of their affections often being strangers, or nearly so. We knew one girl of eighteen who fixed on a man she

only knew casually, and it appeared afterwards that she imagined they had become engaged. She remained in the state described for three months, with intermissions of cheerfulness and natural conduct between the menstrual periods, and then developed maniacal symptoms, which recurred regularly at each menstruation for five months, when she recovered. When dull she was whimsical, and would on no account take her mother's advice or commands; in fact, a change in her affective nature towards her nearest relatives, and a marked intolerance of their control, were parts of her disease, both during the depression and the exultation, as they are in most of the cases of pubescent and adolescent insanity.

The catamenia is in very many if not most of the female cases, regular. There is a common idea that the neuroses and psychoses of adolescence are necessarily dependent on menstrual irregularity. We are satisfied that this is an exaggerated view. Some of the most typical cases of adolescent insanity we have ever seen have been in girls perfectly regular up to the time of the first acute attack of mania. When that occurs, no doubt we are apt to have suspended or irregular menstruation; but this we look on as a symptom, not a cause. Nature commonly suspends the menstrual flow when the blood is needed elsewhere, or the nervous energy is being expended in other directions than potential reproduction. Menstruation is seldom quite normal in acute insanity of any kind, but it by no means follows that this is the cause of most of the acute insanity.

The acute part of the attack usually commences with an exaggeration of the *bien être*, an elevated emotional condition, an exaggeration of self, a complete setting at defiance of conventional restraints and the rule of parents and elders. There is an ostentatious superiority in the men, an assumption of manly airs, often an obtrusive pugnaciousness, and an exaggerated attention to the other sex often with proposals of marriage and a morbid sentimentality. They, in fact, "make themselves ridiculous" by their conduct, and they are very difficult to manage, this becoming one of the most anxious features. They are fault-finding, and think they can do everything better than their parents. They are impudent to an insane degree, use bad language, and soon their habits change for the worse. In the girls the above general symptoms of simple mania are also present, but instead of pugnaciousness we have a tendency to tear and destroy things; instead of premature manly airs we have exaggerated coquetry.

All this time the sleep is much impaired, the patients insist on sitting up half the night, the lads smoking and sometimes drinking out of bravado, and the girls thumping the piano, turning over old dresses, or sitting in *déshabille* in their bedrooms. They eat well, often inordinately in this stage, but they soon begin to look haggard, the pulse is quick and small, and the temperature generally over 99°. This first stage may only last for a day or two or for weeks in different cases.

The next stage is one of acute mania, when the speech becomes incoherent, the conduct outrageous and violent, and the habits filthy and degraded. Commonly masturbation is then practised openly and repeated frequently. The relationship of masturbation to adolescent insanity is often very close, but it is certainly not causal in the majority of cases. It is an almost constant accompaniment and symptom in most acute cases, as an outward expression of the marked erotic ideas, and the strong sexual misus that are a part of the psychology of adolescence. The patients shout, smash furniture, smear themselves with filth, and are quite unmanageable by their relations. Throughout all this a reproductive current of ideas runs. This acute stage in a typical case lasts for about a week; but as the patients have repeated attacks, it may last much longer, and may even run on into an attack of acute mania of several months' duration. But the first attack commonly passes off within the month, receding faster than it came on, and subsiding into a lethargic anergic condition, that is of the nature of stupor and sometimes simulates secondary dementia. While this stage lasts the patients look weary and dull, and they often fatten up, putting on again rapidly the stone or so of flesh they have lost during the acute maniacal period. In a week or so the patient is, or seems, quite well in mind and body. But the improvement is deceptive, for within a few weeks he or she again begins to be morbidly elevated as before, this running on into another short attack of acute mania, rather longer than the first, but which again subsides, and the stages of lethargy and sanity follow. To begin with, the period of four weeks is seen to regulate in a general way the attacks and the remissions; but if they do not cease and pass off after a few months, the maniacal attacks usually lengthen till they last for a month or two instead of a week or two, and the remissions may become also longer, or they may get shorter or less distinct, the mental condition, however,

not "clearing up" as it did at first. The sane intervals through which the speech, appearance and conduct may be apparently normal, yet are almost always characterised by this kind of unreason on the part of the patients—that they minimise the symptoms of their excitement, will not believe they have been very ill, they excuse and explain their eccentric acts, and they blame their nurses, attendants, doctors, and relatives for all their peculiar acts. One of the most anxious phases of the disease is when, after several sharp maniacal attacks, the last perhaps lasting for several months, the patient emerges from the excitement unusually stupid-looking, lethargic, very dirty in habits, unobservant, uninterested, silly, with a blank, inexpressive face, a listless dull eye, and a flabby, muscular system. As we shall see, the most terrible of the endings of the insanity of adolescence is secondary dementia. The symptoms we have described simulate that condition closely, and when they last long enough they constitute it. But there is a condition that may be called "secondary stupor", that is curable, which cannot be distinguished clinically from secondary dementia, and yet demands entirely different treatment. We have on more than one occasion mistaken one for the other, and our diagnosis has only been corrected by the complete recovery of the patient. We were taught a great lesson by the case of a young woman, aged seventeen, whose mother had been a patient of ours labouring under curable melancholia, who had passed through a sharp attack of mania with remissions of six months' duration, with a condition that we deemed secondary dementia following. Her habits were dirty, her intelligence gone, her expression of face blank. We thought her so good a case of the disease that we demonstrated her to our class as a typical early case of such dementia, and yet in the long run she made a perfect recovery, and for nine years kept well and earned her own livelihood.

In the 22 per cent. of adolescent cases, which do not present any symptoms of morbid mental exaltation, but are on the contrary cases of melancholia, delusion, or stupor from the beginning, and remain so, we see the remissional tendency, but not so definitely as in the maniacal cases. The melancholia is apt to be hypochondriacal and selfish in its character: there may be suicidal feelings and impulses, but they are not apt to be of the persistent, intense character of typical suicidal melancholia. There is often a confusional resistive character in the melancholia, and

this is, we think, largely due to the masturbation which is apt to complicate the melancholic and stupor case, even more than the maniacal. It is possible that such cases owe their depressed and stuporose character largely to such excessive masturbation. Very frequently, indeed, there is a religious element in the depression and the delusions of the adolescent, a religious egotism, the presence of which always makes one suspect masturbation. But it would be utterly wrong to connect all the mild feelings of depression, and want of the normal social expansiveness of the age, which is so common a phase of opening manhood in men of high nervous organisation with this evil habit. The lowness of spirits that is often connected with the high aims, the expansive ambitions, the cravings for action, the vaguely felt, innate potentialities without immediate visible scope of the adolescent of 20, are often a part of his sense of the responsibilities and seriousness of the life that lies before him. The full awakening of his sense of duty then, and the mysteries that surround him on all hands, tend to overawe him. The sense of helplessness and insignificance as individuals, which all thoughtful men feel, is then for the first time realised and causes a most natural seriousness in some at that age. It did not need the "Stygian darkness, spectre-haunted," of the adolescent Sartor Resartus to make up the vivid picture of the more ordinary depression incident to this period of life that Carlyle has given us. That was a bit of real melancholia thrown in to give picturesque shadow to the description. The depression in the melancholic cases is apt to last longer than the excitement in the maniacal cases, and the remissions are not so apt to be complete. The patients are commonly thinner and more anæmic, and wanting in general nerve tone. The circulation in the capillaries is poor, and menstruation is apt to be irregular in the females. The most typical cases of stupor of the anergic type—the "acute dementia" of the old authors—are met with at the end of adolescence, and form undoubtedly one variety of the general insanity of the period, but this stupor is more common in the female than in the male sex. It would be redundant for us to describe the symptoms of this stupor, as that will be done in a special article. As regards recovery both the melancholic and stupor cases have as good a chance as the maniacal cases.

Speaking generally, the mania of adolescence is acute, but seldom delirious; the melancholia is stuporose, and not very suicidal. Each maniacal attack is short

in duration, while the melancholic attacks are longer, the mania recurs from two to twenty times, while the depression also recurs, but not so often. The chief complications are masturbation in the males and hysterical symptoms in the females. Unfortunately, most of the male cases masturbate more or less, some of them to the extent of producing intense brain and body exhaustion. Masturbation is only a symptom in most cases, but is a cause of typical insanity in some. Masturbation helps on the dementia in which many adolescents end, but it is not essential to its production. There are a few rare cases where, at adolescence, dementia comes on as a gradual mental enfeeblement without any preliminary mania, melancholia, or stupor, or even delusions, but such cases are the exceptions that prove the rule. Adolescence is on the whole more dangerous to the male sex than the female in the production of insanity. This, we believe, results from the keener sexual nisus and the damaging result of masturbation in that sex. The arch of the hard palate will be found to be abnormal and V-shaped in 55 per cent of all cases of adolescent insanity; an instructive and most suggestive fact, when it is kept in mind that 65 per cent. of all idiots and congenital imbeciles have the same kind of abnormal malformation of the palate.

Normal Psychology of Adolescence.

—The insanity of pubescence and adolescence cannot be properly understood without reference to the normal physiology and psychology of that period of life, any more than the insanities of the climacteric and old age can be understood without reference to the special physiological characteristics and tissue changes of those eras. That the development of the mental faculties during the years that usher in full manhood and womanhood are of the most universal and intense interest is attested by the fact that the delineators of human nature and action have always been specially attracted by character and motive in their heroes and heroines at that period of life. Especially has this been so in modern times. The dramatists, the writers of fiction, and even the historians have lingered fondly over their great characters and their beautiful and interesting women at the ages between twenty-one and twenty-five. Since the modern psychological "novel of character" came into fashion we have had studies of this period by our greatest writers in endless numbers and variety. The fact that it is the period of first love, so dear to the sentimentalist, so unimportant to the psychologist, does not altogether explain

this great interest. There must be a cause for the real fascination to students and portrayers of human nature in the mental problems of adolescence. True, the speculative psychologists and the metaphysicians have passed it over, but then they are not always too much concerned with the facts of nature and the practical interests of human life.

The psychological change at puberty from childhood is no doubt great but it is inchoate in character, and nascent, it wants precision and conscious power, its emotions are shallow and spasmodic, its sentiment wants tenderness, and its ambitions and longings are of the nature of castle building in the air. The fancy of childhood has not attained to the quality of constructive imagination till the end of adolescence, when the seriousness of life is first realised and childish things are put away. At adolescence the reasoning faculty first acquires backbone, the conscience then only assumes real dominance; before then the difference between right and wrong had only been known, then it is felt and acted on. The emotions before this had not only been shallow and volatile but entirely egotistic. Then the altruistic idea and the altruistic sympathies first dominate the whole mental and emotional being and regulate the conduct of life. Before then perfect happiness had been attainable in asexual life, after that the great reproductive ideas and instincts, through which society is held together and the race is maintained and propagated, come to the front in a way that when properly interpreted are seen to give solidarity of purpose and fixity of aim to the individual and to the social fabric. The emotional nature then for the first time acquires a leaning towards the other sex that quite swallows up the former emotions; not that there is absolute fixity and definiteness of altruistic purpose; far from it, there is a certain vagueness of feeling which leaves much to the imagination. The events and possibilities of the future are reflected in vague and dreamlike longings that have much bliss in them but not a little of seriousness and difficulty. The philosophical and evolutionary end of all the strong emotions of adolescence is not understood, it is not usually even attempted to be analysed by the subject of it. The powers and instincts that make for the continuance of the race strengthen every other power and faculty at that period of life. The sense of the seriousness and responsibility of life is first roused through them. The sense of right and wrong, of good and evil is by them kindled into strength enough to guide the conduct. Shame,

modesty, chivalry, self-denial, tenderness, and a host of other virtues and essential social graces are founded on them. The highest moral qualities, the keenest yearnings after the good, the intensest hatred and scorn of evil are not to be found in the asexual men or women. For the first time literature in any real sense is appreciated, poetry, not even understood before, now becomes a passion. Not that the very highest kind of literature or even of poetry is reached till adolescence is passed and perfect manhood or womanhood is attained. Shakespeare and Thackeray, Milton and Tennyson, at their highest level, are only understood by men and women fully formed in body and mind. Last of all, and greatest of all, the will and the power of action are powerfully influenced. Motive is strengthened and execution is intensified. Great ideals never could arise or be followed except when the imagination is in the fervid state met with at the end of the period of adolescence, through the completion and the intensification of the reproductive function—in short through the perfection of the organism.

In the female sex the period of adolescence is more interesting and quite as important, psychically and nervously as in the male. Certainly it is more full of nervous dangers other than insanity in the civilised woman who has had also a long heredity of civilisation. Her normal psychology at this period is more complex. The potential, all-absorbing affection for lover, husband, and children, the combined capacity for self-sacrifice and self-protection of the sex, the nascent instincts of motherhood, are all then working together and being evolved as definite brain functions. We know as physicians that it is then that such neuroses as hysteria, neurasthenia, and migraine—these curses and blights of the lives of the modern city-bred woman—first appear. We know that then the subjective egoism tending towards objective dualism, the cravings for notice and admiration, the platonic loves for persons of the same sex, and the vigorous defensive attitude towards the other sex that has so little of reality and so little of hypocrisy in it, are all markedly seen. The sentimentality, the religious feeling, the real pity for suffering that then arise in the sex, rightly interpreted, all point to the future social and domestic life of the fully developed woman, the centre of which lies in the instincts of reproduction and the rearing of the species. And the absolute outward repression that has to be practised adds much to the strain of life at that time in the neurotic young woman of modern civilisa-

tion. She has often to find outlets for her affective nature other than its proper channels. But we can conceive some one asking: What has all this physiological psychology of adolescence to do with the insanity that occurs in a comparatively few cases out of the many adolescents in a civilised country? It has this essential relationship in our opinion. These subtle, complex, and all important mental, emotional, volitional and instinctive qualities cannot be developed but through corresponding structural and trophic development in the brain. The higher the function the more delicate the structure and the more liable to derangement therefore. Those great and essential qualities mean that the brain is taking to its highest work. The machinery for doing this has been preparing during childhood, but does not come into actual and full working till adolescence. Therefore this period must be a trying time to the brain—a real crisis, just as birth is. There is a new birth of all the higher social qualities at adolescence. And Nature's laws of the transmission of hereditary defects then only begin to manifest themselves fully, the object of these laws evidently being to stop the development of a weak stock before full reproductive capacity arises. The qualities then developing are nervous and mental, therefore the defects brought out by bad heredity are nervous and mental. Of all these defects, actual mental disease is the most important, because it means most socially. It is social death and extinction if it lasts. The reproduction of the species is the keynote and ultimate "cause" of all the social and emotional qualities we have referred to.

The reproductive nisus and capacity are periodic in character, ebbing and flowing, reaching their intensity at recurring intervals of time. In the human species the period of four weeks is the regulative unit of time. That is the typical period that regulates menstruation, sexual desire, full sexual and conceptive energy. The period of greatest intensity of reproduction is accompanied by an excess of all other kinds of nervous energy; by a conscious increase in the organic sense of well being and capacity for exertion of all kinds, mental and bodily, in the healthy of both sexes. This normal reproductive periodicity is the cause of the abnormal periodicity that is the great feature of adolescent mania, just as it is of the periodicity of the attacks of hysteria and migraine. It gives the keynote and explanation, therefore, of the periodical quality and of the maniacal or elevated

character of adolescent insanity which are its distinguishing characteristics as compared with other varieties of mental disease. Therefore the physiology of adolescence, its psychology, its neurology, and its psychiatry, must all hang together, being explained and unified by the facts of the development of the capacity and desire to propagate the species, then going on.

Prognosis.—In our experience 65 per cent. of the cases of adolescent and pubescent insanity recover under proper treatment: an exceedingly small proportion die, and from 15 to 25 per cent. become incurable. These results are much the same as those given by Dr. Bevan Lewis. He found females more curable than males, which is not our experience. The ending that is most common, if recovery does not take place, is typical secondary dementia, with more or less periodic exacerbations of maniacal attacks for the first few years. A few end in chronic mania, a few in *folie circulaire*, and a few in delusional insanity.

The Secondary Dementia of Adolescence.—This dementia is characterised by weakened mental faculties all along the line, in judgment, emotion, will, power of attention, and memory; and yet the ordinary bodily health may be good, so that such patients under suitable conditions may live long lives. The mental centres in the cortex have been lowered in working, and have undergone dissolution of function up to a certain point, but the dissolution is not progressive. The brain is capable, in this form of dementia, in some cases, and for a short time, on intense mental stimulation, of being roused up and displaying powers that have been latent for years, while the effects of the stimulation last. But the utmost care must be taken not to give a prognosis of such incurable dementia too soon in any case, for there is a temporary and curable condition of "secondary stupor" that so closely simulates such dementia that nothing but time will distinguish them. Many cases recover once or twice, and have several years of sanity, and yet break down, and pass into dementia after adolescence has passed. We count the secondary dementia that occurs as a sequel to the insanity of adolescence to be the typical dementia. It does not result in our opinion so much or so often from the damage caused to the brain cortex by the previous maniacal storm there, with its over-action, congestion, and general functional disturbance, but from an innate hereditary tendency to such mental death that has existed from the very beginning, and of which the mania was the first

stage. The few cases to which we have alluded, where there is a gradual enfeeblement of mind during adolescence till typical secondary dementia is reached, without any preliminary acute insanity, are very instructive as to the true genesis and significance of adolescent insanity. Such cases, taken together with the character of the dementia and the morphological characters to which we have alluded, show that they have something in common with imbecility and idiocy—show, in fact, a hereditary and psychological connection between congenital and adolescent insanity. While the recoveries are in a fair number of cases perfect, yet there are some where there is not complete restoration to mental energy, but some weak point left, such as marked eccentricity, incapacity to fight the battle of life, want of energy, diminished social instincts, lessened control, or some other psychological defect not amounting to technical insanity. Our experience is, that from three months to a year is the ordinary time required for complete recovery in different adolescent cases, but we have known a good recovery take place after six years of recurring maniacal attacks with threatened dementia (secondary stupor) after each.

Signs of Recovery.—The best signs of a complete recovery are a full development of the manly or womanly type of form and voice and mental action, with a great increase of fat and a general good nutritive condition of the whole body. Especially we place importance on the fact, if in males the beard and sexual hair take a sudden start of growth just before final recovery. When adolescent insanity first comes on the form is immature, the patients are lads and girls in body and mind; after recovery they are fully developed men and women. This coincidence of completed development of the organism as to full reproductive capacity, as partly evidenced by the grown beard, is a strong proof to our mind that the organic and evolutionary meaning of adolescent insanity is, that Nature in striving to complete an organism finds defects in the higher mental regions of the cortex standing in the way, and if these defects are very great and not to be overcome, she saves the race by killing the organism mentally before procreative power is complete, and so stops a bad stock.

The chief business of the physician in the treatment of this condition is, in our judgment, to help Nature to complete the developmental process and to counteract hereditary and environmental defects.

Its Genesis.—As regards the genesis of the insanity of adolescence and pubes-

cence, looked at from the hereditary point of view, it occurs in the sixth or last stage of neurotic and mental hereditary degeneracy—the stage next complete mental extinction. “Beginning with brain health, implying fairly sound mind, moral sensibility, and inhibition, good morals, stable motor functions, and a good trophic and organic state. The initial departure from this, when a man and woman marry whose nervous developments on the whole are more marked than their trophic, and they have children, is commonly the following:—

(1) Extra mental activity, irritability, sleeplessness, and want of fat.

(2) We next come to hypersensitiveness, pronounced manners, strong artistic and poetic feelings, reproductive *nisus* strong and uncontrolled in youth, acute emotional religiousness, thinness of habit, and premature senility preceded by hypochondriasis and mental inactivity.

(3) The third stage is eccentricity, fitful brilliance, incapacity to see that two and two necessarily make four, instability, hysteria, neuralgia, and asceticism in the women, drunkenness in the men, with few children, and early dotage in both sexes. The so-called neuropathic diathesis, or *neurosis insana*, has begun, and more than this, for sporadic cases of idiocy and epilepsy appear in this generation. This is the stage of ‘moral insanity,’ too.

(4) The fourth step in the descent takes us to the first commonly recognised insanity, melancholia, with breakdown at the climacteric. We presume this is a true reversion to a very prevalent law of Nature, that, when reproductive power ceases, the process of dying has begun.

(5) The fifth step is *folie circulaire* and maniacal attacks. The normal stability of brain working has so disappeared that the periodicities of nervous and mental action have become exaggerated into a marked disease, the chief characteristic of which is that the individual leads two or three lives, is almost two or three distinct personalities, according to the phase of nervous action he is in. The curable insanities of full development occur here, viz., puerperal, lactational, and such-like insanities. Secondary dementia does not readily supervene after these, in only 25 per cent., and, when it does occur, it is incomplete and complicated. When the insanities of this stage become incurable, they tend to become chronic delusional states rather than pure dementia.

(6) The last phase is that of being subject to severe developmental nervous diseases of all sorts, epilepsy, chorea, bad

hysteria, and, above all, adolescent insanity, ending, after a few periodic recoveries, in secondary dementia, Nature’s typical mode of bringing a mentally bad stock to an end. All the great functions and organs are liable to characteristic diseases in adolescence; but, when it is the mental tissue whose function succumbs at that time of life, it can only have one meaning. The stock has exhausted its inherent hereditary energising vigour in that which distinguishes man from all else in creation—high mentalisation.

It does not take as many actual generations in all cases to step down through these gradations of nervous and mental instability, degeneration, and death. In the same family we often find one member simply hypochondriacal, another an eccentric genius, another a dipsomaniac, and a fourth demented. Not only so, but we have repeatedly met with individual instances of adolescent insanity ending in dementia in families in whom for four or five generations only ‘nervousness’ or strong emotionalism existed with no insanity at all. The marriage of two persons of this temperament had resulted in a stock unfit mentally to live.”*

Treatment.—The treatment of this condition, which we have come to regard as the best and most successful, is founded on physiological considerations. Believing the development of the reproductive function is largely at the bottom of the disease, seeing that the sexual *nisus* is strong and often uncontrolled and seeks unnatural outlets, and having conclusive evidence that the exacerbations of the disease are coincident with the periods of exalted generative energy, we treated our adolescent patients by a non-stimulating, but fattening, dietary, and found it answered better than stimulating food. We feed them all now on milk, eggs, fish, Scotch broth, bread and butter, vegetables and fruits, with little animal food, and that white meat if possible. Then knowing that muscular exercise, especially if taken in the fresh air, tends to draw off undue sexual energy and desire, we work and walk our patients till they are tired, every day. Set them to dig, to weed, to walk, to play athletic games, to do gymnastics and to dance, and most of them will thrive and recover. Then, seeing that the completion of the period of adolescence in both sexes is accompanied in most normal persons with a considerable deposit of fat over the body and a state of general good nourishment, we give extra quantities of such fattening foods as we have men-

* Author’s address, “Secondary Dementia,” *Journ. Ment. Sci.*, 1888.

tioned. We preach the gospel of fatness to such patients, and over-feed if plenty of exercise can be taken. Develop the fat and muscles, and so starve the reproductive force. We often give young men who are out much from five to six pints of milk a day, with from six to sixteen eggs whipped up in it, so as to make liquid custards that can be easily taken, and this in addition to ordinary diet. To carry out the same object, and to brace up the "nerve tone"—which, when braced up, always gives the best chance to the inhibitory faculty—we use baths, cold and shower and sometimes Turkish, with dry skin rubbing every night and morning. The food-medicines, cod-liver oil and maltine, are useful for the same reason. The digestive tonics, such as quinine, the mineral acids, the phosphates and hypophosphites of lime and soda, are also useful. If there is a tendency to stupor or dementia, we give strychnine and use the continued current. Fatten your patient and make him gain in weight if you can. He will then have the best chance of tiding over the dangerous developmental period, and energising a full-grown and perfect organism. The bromides are occasionally used for their general sedative effects and for their anti-sexual effects. No doubt many cases need hypnotics occasionally, and we find paraldehyde and sulphonal the best, but we don't use them more than we can help, and we always omit them occasionally and try how the patient does without them. If a patient is gaining in weight within the first six months of treatment, we know that in the fight with the disease we are having the best of it. Of course, fattening may mean dementia after that time. We believe more of our patients recover under this treatment than did under any other we have tried; and the two worst complications of the disease, masturbation in the males and hysterical symptoms in the females, are less troublesome, and not so apt to become confirmed.

Prophylaxis.—Suppose we could certainly say that any given child would be liable to an attack of insanity of pubescence or adolescence, have we any means of prevention? It is doubtful, but lean neurotic children of quick movements, keen reflexes, nervous mobile countenances and eyes, too great sensitiveness and mental reactivity, and high arched palates are notoriously apt to have keen cravings for animal and stimulating foods and drinks; they are "flesh-eaters" mostly, and don't like milk and porridge. Such children, if there is an unfavourable mental heredity, are, in our experience,

those that run most risk of having an attack of insanity at adolescence, and they also are apt to get under the domination of the habit of masturbation if taught it early. We believe unstimulating diet, plenty of milk, an active life in the fresh air, games, not too great addiction to story reading, a firm but kindly discipline, are all corrective of their weak points, and we believe are also prophylactic against developmental insanity and developmental psychoses and neuroses generally.

T. S. CLOUSTON.

DIABETES AND INSANITY.—The battle as to the true origin of diabetes is at present drawn, certain physiologists looking upon the liver or at least the digestive functions as at fault in diabetes, others, with the support of certain experiments on animals, maintaining that the nervous system is the cause of the malady.

It has been said that diabetes, or glycosuria at least, is frequent among the insane. Dr. H. Dickinson of St. George's Hospital recorded his results which were later called in question by Dr. Hale White. The former thought he found sugar in a considerable number of the insane, while the latter found it but rarely. After the special examination of many hundreds of specimens of urine from the insane, we must say it is in our experience rare to meet with it among them.

There is, however, some connection between diabetes and insanity, as we shall proceed to point out. Dr. Maudsley has recorded as his experience that it is not uncommon to find a history of diabetes in the parents or near ancestors of insane patients; this is also our experience, especially among the affluent classes. We cannot as yet say that any special form of insanity can be said to be directly related to such inheritance, but we believe most of the cases which have come before us have been melancholic or hypochondriacal, and many of them have been connected with adolescence, the climacteric, or some other special vital determining cause.

We believe then that diabetes in a parent may be directly related to insanity in the offspring, but whether both depend upon one common cause or whether brain degeneration in the diabetic patient leads to insanity in the next generation, we cannot say.

It is noteworthy that this alternation may occur not only in the family but also in the individual. A patient may suffer from diabetes for a time and may become insane when all symptoms of diabetes disappear only to reappear on the recovery from the insanity (see ALTERNATION OF NEUROSES). Diabetes has been divided

into diabetes insipidus and diabetes mellitus, or polyuria and glycosuria. Diabetes insipidus is frequently met with in various states of temporary nervous disorder; it is most common in hysteria, and in some forms of hypochondriasis we have also met with it. One patient, a male, believed his brains to be wasted and himself to be gradually dying, and passed a large quantity of urine of the sp. gr. 1003. On recovering his urine became normal.

Glycosuria may occur in the insane and may be temporary or permanent or it may be followed by insanity, or may alternate with it, or it may precede or accompany insanity of a fatal type, to pass off with the acute symptoms, returning before the fatal issue of the disease.

In some cases of puerperal insanity we recorded the occurrence of sugar in urine (glycosuria) without polyuria, and without any of the ordinary diabetic symptoms; this, as a rule, occurs after the recession of the milk and lasts only a few days, and is of no permanent importance. This fact has been denied by some asylum physicians, but has again recently been substantiated by Dr. Ord from observations at Cane Hill Asylum.

In a few rare cases with mental degeneration, such as cases of post-apoplectic dementia, and in others of senile insanity, diabetes has also appeared and remained permanently present, but we believe that these cases are only comparable to those of old persons who have glycosuria for years, which they are able to neglect and which does not materially affect their lives.

In some patients, and we have met such in both young and acute cases of diabetes as well as in old and chronic cases, after the disease with all its best recognised symptoms has lasted for some time, mental disorder arises. It generally in our experience has been of the melancholic type and with the insanity the diabetes disappears; and may remain permanently absent, may reappear with recovery from the insanity, or may reappear before a fresh attack of insanity.

In some cases the diabetes may be latent as it were, and may reappear when the insane patient is dying of lung or other disease.

Diabetes may occur in cases of general paralysis of the insane and may pass off for a time while the acute mental disorder exists, to reappear when the general paralysis is passing into its second or third stage. In general paralysis with diabetes the appetite, thirst, and other distressing symptoms may be absent.

GEO. H. SAVAGE.

DIABOLEPTICS (διάβολος, the devil; λήψις, a taking hold of, from λαμβάνω, I seize). Maudsley's term for those ecstasies who profess to have supernatural communications.

DIAGNOSIS OF MENTAL DISORDERS.—To decide the question whether a man be insane or not, it will, in a great number of cases, be only necessary for this purpose to give him the treatment necessary to cure an insane person, or at least to place him under suitable care; in other cases this question will have to be decided on grounds not directly connected with the therapeutic object. The task will then be to examine whether a person is, in consequence of mental derangement, incapable of disposing freely of his person, his actions, and his fortune; whether he is responsible for a criminal action; whether he is capable of taking proper care of his rights in a law-suit; whether he deserves credit as a witness, or whether it is right he should undergo the punishment to which he is condemned. But even where the object is a merely therapeutic one, the decision of the question, whether or not a man is insane, is of much greater importance than medical advice in any other disease, in consequence of the resulting necessity of depriving the patients of their personal liberty by sending them into an asylum.

In other respects, also, the diagnosis of mental derangement is different from that of other diseases. In the latter case, patients ask for the medical man; go to see him, and do everything to facilitate the right diagnosis of the disease. But the insane patient is in a great number of cases exceedingly reserved towards the medical man; simulates, or is, in consequence of his mental derangement, incapable of giving exact information. The diagnosis is as important as in many cases it is difficult.

If the patient is able and willing to give information about himself, the examination of an insane person has to be carried out on the same principles as that of other patients. One may first ask the name, age, profession, &c., then one may proceed to the history of the case, then examine the mental state, and finish with the examination of the bodily condition; in the latter, the examination of the peripheral nervous system is of great importance.

History of the Case.—The following points must be well considered:—

(1) *The Hereditary Predisposition.*—We must not confine our inquiries to the occurrence of mental derangements in the direct ascending line of ancestors' direct

inheritance, but inquire about the whole consanguinity (collateral inheritance). We must inquire if there are among the relatives nervous diseases, which generally are not reckoned among the mental disorders; if epilepsy, hypochondriasis or hysteria have occurred, or if there have been cases of suicide in the family; also if other factors, which according to our experience lead to degeneration, as consanguinity of the parents, alcoholism, morphinism, &c., have been or are present in the family.

(2) *Diseases of the Nervous System formerly present.*—It must be especially inquired if hysterical, epileptic or epileptoid fits have occurred in the previous life; also if meningitis, apoplectic fits or other organic diseases of the brain and spinal cord have occurred.

(3) *Injuries to the Head.*—If there have been any, they must be carefully taken into consideration with regard to origin, course and local effects.

(4) For information respecting *previous intoxications*—especially by alcohol, morphia, cocaine and nicotine—the help of the relatives will frequently be required, even if the patient is able to give satisfactory information about other matters. Sometimes the profession of the patient—inkeeper, commercial traveller for a wine or cigar merchant—will give a clue.

(5) A previous attack of *mental derangement*, or detention in an asylum has to be carefully considered in the history of the case.

(6) At last the question will have to be raised whether the *character of the patient has changed*, and, if so, whether external influences, events in his life, &c., have brought this about. This change of character may be shown by a complete reverse of the former self, or by exaggeration of certain peculiarities. A man formerly moderate becomes, through incipient mental derangement, inclined to all sorts of extravagance; a saving man becomes a spendthrift; a man formerly indifferent to all religious things occupies himself constantly with the Bible and hymn-book, goes to church, &c. Anxious care with regard to his own bodily state becomes exaggerated to an incessant fright lest something might have or has happened to him; a man formerly trustful locks everything most carefully up and openly expresses his fear that he may be robbed of something; a man formerly reserved in his character becomes quite a recluse, &c.

Although it is important to find the symptoms mentioned here, we must not on the one hand forget that they all may

be absent even if mental derangement is undoubtedly present, and on the other hand a few or all of them may be present without there being any mental derangement. Therefore they are only of value as aids in diagnosis.

It is necessary for the diagnosis of mental derangement to prove *that one mental function or several—or even all—have undergone a morbid change.* We shall have therefore to examine—(I.) Subjective sensorial perception (hallucinations and illusions); (II.) The intellect; (III.) The emotions; (IV.) The power of reproducing ideas (recollection); (V.) Consciousness; and (VI.) The actions which result from all the foregoing mental states.

I. **Hallucinations and Illusions** indicate changes in the central sensorial perception of the insane, which very frequently occur. We must examine whether the hallucinations or illusions respectively occur in the sense of hearing, vision, smell or taste, in the sensation of the skin and the viscera, and in the muscular sense, and not confine ourselves to finding them in one or other of the senses. The greater the experience of the examining physician the easier it will be for him to find out the hallucinations, with regard to which many patients are very reserved. Much depends on clever questioning.

The existence of hallucinations in the person examined does not prove the mental derangement of that person. Hallucinations occur also in sane persons; in hysterical, hypochondriacal and epileptic persons, and in states of intoxication, no mental derangement, in the strict sense of the word, being present. But in all these cases the person recognises that he is subject to an hallucination. With regard specially to the hallucinations of sane persons they occur only at long intervals or only once in the whole life and mostly in the visual sense. The same is the case with hysterical and also hypochondriacal persons. So far as they are not insane, they recognise the abnormality of that state. In epileptic persons the hallucination sometimes ushers in the epileptic attack (especially visual and auditory hallucinations) and appears therefore as part of it; in others the hallucination may take the place of the epileptic attack (epileptoid hallucination). In the hallucinations of temporary intoxication, the poisoned person mostly recognises the abnormality of his state; he stands above the hallucinations and assumes the position of an observer recognising them to be deception. If such a state of intoxication lasts a long time

and if the patient changes his standpoint towards these hallucinations, believing them to be realities, he must be considered insane. That a person recognises hallucinations to be a morbid state is however no proof that the person is really sane. It often occurs in severe cases of insanity that patients recognise temporarily their hallucinations as an abnormal state, or they sometimes say so after they have been told, in order to appear sane. On the other hand, the insane give an exact account of their hallucinations and call them abnormal; but on further questioning they say that this disease had been made; that they had been poisoned or hypnotised and that was the cause of the hallucinations (hypochondriac paranoia, cocaineism, &c.) But also the fact that certain persons do not consider their hallucinations to be deception but truth does not prove that those persons are insane, even if they stick to their idea in spite of all correction. Ignorance of the physical laws, want of education, but most of all superstition, especially of a religious nature, may cause hallucinations to be taken as realities. Much more difficult than the estimation of the diagnostic value of the hallucinations, of which the patient informs the physician, is it to recognise simulation, if the patient keeps his hallucinations secret.

For the diagnosis of these the following points are of importance:—

(1) Certain peculiarities in the behaviour of the patient; he will suddenly look to the ceiling or into a corner of the room; he will prick up his ears or incline his ear to one side; he will suddenly stop in his speech and it seems as if the patient at the moment busies himself with something else; at the same time he will murmur in a low voice or even make a loud exclamation. The behaviour of the patient will have to be carefully examined when some food is offered to him, whether he will take it hesitatingly or refuse to take it at all.

(2) Certain peculiarities with regard to the body of the patient or with regard to his room—*e.g.*, he may wrap up his head, especially his ears, with a thick shawl, and stuff his ears with cotton-wool, to keep away auditory hallucinations; he may stop the keyhole of his door with paper to prevent the harmful entering of "vapours," &c.

(3) The patient speaks about all sorts of things and persons far remote from or about which he pretends to have received news. This or that he says to have happened; this or that person he relates

to have said so and so. Questioned how he knows this he will reply evasively, "I think so; it is true I have not heard or read anything about it." His uncertainty and embarrassment will show that he does not tell the truth.

(4) In some cases one has to convict the patient of concealing his hallucinations, by keeping him secretly under observation whilst alone in the room. The hallucinations can be recognised by his gesticulations and his talking, which sometimes takes the form of a dialogue. Some patients reveal their hallucinations without reserve in papers addressed to certain persons, whilst keeping them most carefully secret in ordinary conversation. In most cases, however, the physician, having from the symptoms mentioned above an indication of the existence of hallucinations, will, through openly telling the patient the facts, succeed in overcoming his reserve.

It follows from all this that although the existence of insanity is not proved by the present or former existence of hallucinations, nevertheless their presence in several of the senses in a person not in a feverish state, together with his firm belief in the objective reality of the hallucinations, is sufficient to prove that such person is insane.

II. **The Intellect** can be morbidly affected in three ways.

(a) Abnormal acceleration of ideas. The patient shows this through incessant talking, allowing nobody else to speak, and in a still greater measure in not finishing a sentence just begun, but commencing another one, speaking at random of this and that, and joining the ideas together, not after any logical principle, but after the sound of the words (hallucination). To recognise such patients, where there is acceleration of ideas, as insane, is not difficult, even laymen calling them mad. It is much more difficult when that acceleration keeps itself within moderate limits, and where the patient through the courageous association of his ideas can even make the impression of possessing great *esprit* and witticism (hypomania). In this case often a long observation of the patient's behaviour and actions will alone lead to a correct diagnosis of the disease.

(b) Imperfect development of the intellect (imbecility, complete idiocy, and when associated with certain changes of the osseous system, cretinism), as well as morbid diminution thereof, are in those well marked stages easily recognisable, where every capacity of judgment is absent, and the patient is not able to work out even the simplest sums, so that

the question of simulation only arises. It becomes most difficult to say whether or not a person is insane, if the mental weakness is not so very great, and if the patient is able to conceal the weakness of his own judgment by reproducing the judgments of others which he has heard. In that case the diagnosis can only be made by taking into consideration the whole education of the person, by facts of the history of the case (former attacks of insanity, as a residue of which must be regarded the mental weakness), by the actions of the patient, and by abnormal conditions of the nervous system tending to prove insanity. With the help of all these facts the physician will be able to distinguish a person with little brain power from a mentally deranged one, especially with regard to education. A certain amount of artfulness in trying to obtain personal advantages is no proof against mental weakness.

(c) Hallucinations. That a perception is a hallucination can of course be recognised at once from its subject-matter. If a man pretend to be God or Jesus Christ, to be 1000 years old, to have killed 10,000 men, to have a head of glass, &c., no further proof is wanted that the individual is suffering from delusions and is insane.

The subject-matter, however, of a delusion may be perfectly like the error of a sane person. A number of patients believe themselves to be possessed by the devil; but sane people also believe in the existence of the devil, and believe themselves to be bewitched, &c. In the former class, however, this belief has been formed mostly contrary to former views, through abnormal sensations, through hallucinations, through an abnormal condition of their senses, in consequence of which they accuse themselves of all sorts of wicked actions. The patients have that idea only with regard to their own person, and besides that illusion, they also show other signs of mental alienation; nothing whatever is able to persuade them of the incorrectness of their ideas, and their belief governs all their doings. Sane people, however, have brought the belief in a devil out of school and the teaching of the clergyman, and perceive the existence of the devil not only in themselves, but also in other persons; if told differently they sometimes are persuaded of their error. (Prejudices and errors planted for a long time and with energy into the youthful mind will, later on in life, be removed with great difficulty, and with regard thereto are very much like the delusions; the difference, however, lies mainly in the origin of those views.) The sane person will go

as usual after his business, and the error will not influence his actions, whilst in the insane person the delusion decidedly influences his doings, and makes him unfit to look after his affairs.

An idea may also be correct and objectively true, and nevertheless be a delusion. One of our patients (a case of hallucinatory paranoia from the lower, not educated classes) maintained that he had a "tapeworm" in his head. There were no symptoms of *cysticercus cerebri*. The post-mortem examination, however, showed a number of *cysticercus vesicles* in the fourth ventricle; there was no other change besides this. This patient had not, like a physician, formed his diagnosis in consequence of the occurrence of certain symptoms, but by interpreting certain illusions. Some of these occurring in the intestines made him believe in the existence of a tapeworm, which he then transferred to the head.

The morbid nature of the so-called fixed ideas can be proved not only by their origin, but by the fact that, although not qualitatively impossible or unjustified, they show through their quality (*i.e.*, through their overpowering influence in the mental life of the patient) the impossibility of correction or limitation through other ideas. It is on the one hand relatively rare that errors are taken for illusions, but on the other hand it is more frequent that illusions are taken for excusable errors of a sane person or even for well-founded truth. The want of knowledge of mental science among physicians, the limitation of the examination to a few phrases or to one conversation, allow mistakes to happen every day which are of the greatest importance from a forensic point of view. An exact knowledge of the history of the case, a most careful examination of the *whole patient*, as well as a sufficient knowledge of mental science, are necessary to guard against these mistakes. The relatives of the patient are in many cases easily inclined to seek for those illusions a certain foundation, and for them a small grain of truth is sufficient to interpret everything as a slight error or as not improbable.

We have here to draw attention to certain hypochondriacal illusions, through which specialists are often led to make a wrong diagnosis. A number of those patients who complain of manifold maladies of the sexual apparatus, and who have been treated by a specialist for some slight local disease (slight vaginal catarrh, slight misplacement of the uterus, &c.) for months and years, belong to the class of those who suffer from melancholia or

hypochondriacal paranoia; their disease is mostly of a hypochondriacal nature. The same is the case with some patients who suffer from nose, larynx, and stomach, and who at last come into the hands of the alienist as insane, after their disease has been treated for a long time as local. These patients will tell us that their gastric catarrh is caused by poison which some enemies have administered to them, and that pains in their larynx came on immediately after the news of the Emperor Frederick's illness had arrived, &c.

We have again to repeat here that to decide whether or not an idea be a delusion, its genesis is of the greatest importance.

If it is proved that delusions are present, it is necessary, especially for the purpose of diagnosis of the form of insanity, to refer the delusions according to their subject matter to a primordial derangement, for however manifold the delusions of the insane may be, they always can be retraced to certain primordial derangements.

Primordial derangements, which come here into consideration, are—

(1) *Expansive delirium* (delirium maniacale), which in its slighter stages contains only a certain over-estimation of bodily and mental capabilities, and in its higher stages most absurd ideas of exaltation. (Mania, mostly with a certain limitation of the ideas of exaltation, progressive paralysis without any limitation, alcoholism, epileptic mental derangement, several organic mental derangements, multiple sclerosis.)

(2) *Depression*, which may be either melancholy, the patient imagining himself to have committed sin and all sorts of crimes or hypochondriacal, the patient fancying changes in his own body to have taken place. Both examples of delusion occur in the above-named forms of insanity (with the exception of mania), and they especially form an important part of the symptoms of melancholia and its different species. The depression is sometimes found as *delirium negationis*, the patient indulging in denying and abnegating everything in existence. Melancholy depression has mostly a religious subject-matter; hypochondriacal depression mostly refers to the sexual organs (sexual delirium). Persecution mania, as far as the persecutions are a punishment for the crimes of the patient, is a consequence of that depression.

(3) *Persecution mania* in a stricter sense (*delirium persecutionis*), the patient imagining that other persons intend to do him harm, without his having given, in

his life or his actions, any reason or at least not a sufficient reason therefor (especially in the different forms of paranoia, but also in progressive paralysis, alcoholism, &c.).

(4) *Expansive delirium combined with persecution mania*. The patient imagines himself to be persecuted by enemies who will prevent him from attaining certain ambitious aims. In a very distinct and systematised form we find this delirium in primary paranoia, occasionally also in alcoholism, in epileptic mental derangements, less systematically in progressive paralysis.

(5) *Delirium metabolicum*.—Everything is changed; the attendants are ministers in disguise, the other patients are not ill, and are only there under a pretence and as informers, &c. This delirium is often the further development of maniacal or melancholy illusions.

(6) *Delirium palingnosticum*.—The patient has seen and experienced in former times, what happens at that very moment. (Deception of identifying recollection.) The event of the moment is rightly perceived, but the recollection is produced phantastically. In other cases delirium palingnosticum is caused by incorrect perception of the present event, in consequence partly of want of attention, partly of illusions, partly of dulness of consciousness.

Although the existence of undoubted delusions proves insanity; nevertheless, insanity may also exist without any delusions. In idiocy, in acquired dementia, in many cases of melancholia, especially in its incipient stage, in hypomania, in the slighter forms of mania, and in circular psychoses, delusions may be entirely absent.

III. Examination of the **Emotions** has to show—

(a) Whether there is easy excitability (*Emotivitaet.*); whether the patient now laughs, then cries, without there being a sufficient reason for so strong an outbreak of the emotions.

(b) Whether the emotions are abnormally painful ones (*psychalgia*, *phrenalgia*); whether the patient is grieved with everything he sees or experiences, and becomes greatly depressed.

(c) Whether the patient is abnormally cheerful (*psychical hedonia*). The patient is without any cause constantly merry, and in high spirits, all his emotions being in an abnormally pleasant direction.

(d) The patient has no emotions at all. No sign shows that he is capable of receiving any impression; he is in a state of mental hebetude (*oliguria*).

(e) The emotions are abnormally perverted. In the majority of cases this perversion can only be proved from previous acts, or through continual observation. Sometimes the patient, if questioned about previous actions, will explain the impulses resulting from the perverted emotions and the actions caused thereby. To this class belong numerous derangements of sexual instinct; contrary sexual feeling; paradoxia of the sexual emotions, exposure of the person (exhibitionists). Whilst psychalgia, abnormal mental grief, is sometimes the only symptom of mental derangement of melancholia, the other derangements of the emotions will only suffice for the proof of insanity in connection with other symptoms (hedonia with abnormal increase of flow of ideas; oligoria with abnormal decrease of the intellect, or melancholy or hypochondriacal illusions).

From the emotions which proceed from the state of bodily and mental health, results the sense of health or illness. In the greater number of cases every sense of illness is absent in insane persons. It is abnormally exaggerated in some cases in which there are melancholy and hypochondriacal illusions, and they form in these cases the foundation of the judgment of the value of that sense of illness. But there are also insane persons who have nearly a normal sense of illness—as, e.g., certain weak-minded persons who, conscious of their mental inferiority, to escape the storms of life go to an asylum; the same is the case in periodical and circular derangements; in derangement produced by metastatic diseases of the brain; in the stage of remission in progressive paralysis; in derangements following intoxication, &c. Some of these conditions have been called *folie avec conscience*. We have to separate it from all those cases in which the patient states that he suffers from mental derangement, but considers it is produced by his enemies and persecutors, and as a punishment for his former life. In these cases the sense of illness is not a perception corresponding to the facts, but a symptom and a production of the illusion.

From all this it follows in the diagnosis of mental derangements, that an existing sense of illness which corresponds on the whole to the abnormal condition, does not exclude the existence of mental derangement.

IV. The examination of the **Power of Recollection** will have to discover whether, considering the fact that in some cases of insanity (mania) there exists an abnormal exaggeration of memory-power (hyperamnesia), there is not a decrease

of the power of recollection—*i.e.*, of the ability to recall residues of former impressions, and whether this decrease is total or partial. In the former, as it exists in various forms of insanity, especially in the more advanced stages of parietic and senile dementia, the power of recollection has entirely disappeared. Here also memory in a stricter sense—*i.e.*, the possibility of fixing impressions (residues of excitement), is completely extinguished, so that there is also no recollection of things just past in consequence of non-perception of the corresponding pictures. If weakness of memory is not present in a lesser degree, we find in consequence of the indistinctness of the memory-pictures delusions of recollection (paramnesiæ).

Where there are only partial amnesiæ we shall have to distinguish (a) those forms in which nothing of what has happened since the beginning of the disease is present, but recollection of what has previously happened appears normal (patients with a slight degree of senile dementia relate with great reliability events of their youth, and do not recollect that half-an-hour ago somebody called to see them). (b) In rare cases only the recollection of things that have happened before the commencement of the disease appears markedly disturbed or even extinguished, while facts which happened during the course of the disease are well remembered. (c) In other cases partial amnesia consists in this, that only certain days or hours are not present in recollection. To this belong hystero-epileptic (somnambulous) and epileptic conditions. This is likewise the case in certain conditions of stupor and frenzy (frenzy may be caused by various abnormal mental conditions). The inability to recollect is here often due to the fact that the mind had no power to receive impressions during those conditions.

It is only when there is proof of considerable weakness of memory, existing during the time of examination, that the existence of mental derangement is established; and even then we have to take into consideration the physiological loss of memory in consequence of old age. Partial amnesiæ occur also in hysterical and epileptic persons. In examinations for forensic purposes, the question whether there exists capability of recollection of the time of a certain action, may be of greatest importance, and can generally be answered only with the help of other proved symptoms of the disease.

V. The condition of **Consciousness**, which forms the sum of the perceptions,

ideas, and emotions existing in the life of the patient at the present time, follows from the consideration of the mental faculties above referred to.

Complete loss of consciousness — *i.e.*, absence of any psychical process — is only seen in the classical epileptic fit, in the apoplectic fit, and in agonia. We have to examine whether consciousness has been altered in such a manner that perceptions and ideas do not reach perfect clearness, complete or nearly complete amnesia existing at the same time (*psychische Daemmerzustaende*), as is observed in epileptic and hysterical persons, in persons under the influence of alcohol, and in various forms of organic disease of the brain with mental derangement. Of much greater importance, however, for the diagnosis of insanity is the examination of the consciousness of the ego — *i.e.*, the comparing of processes in the consciousness of the ego with the outer world. This consciousness of the ego represents the consciousness of being conscious. In every insane person this highest stage of development of mental life is deranged. To prove that this ego has undergone a morbid change is the principal task of the diagnosis of insanity. In most cases the diagnosis will follow from the examination of the different mental capabilities, as we have explained them above. If consciousness of the ego is extinguished, nevertheless most vivid perceptions and ideas may take place in the consciousness, and they may induce actions — as, *e.g.*, in certain cases of epileptic mental derangement and certain conditions of intoxication. In other cases, the motor capability is paralysed, and a multitude of delusions and hallucinations are present (certain cases of stupor).

We have to mention here that abnormal condition of consciousness described as "double consciousness," as a division of the ego into two egos. This may take place in such manner that the patient represents at different times different personalities, this change sometimes occurring regularly (*alternating consciousness, double consciousness* — *e.g.*, in somnambulism), or that the patient unites in himself *at the same time* two personalities (doubling of personality, mostly with corresponding hallucinations, especially in paranoia).

In examining the mental condition, the physician will have to direct his attention to the facial expression of the patient. This we mostly find to be either monotonous, indicating vivid internal grief — the contraction of certain muscles being

exaggerated to statue-like rigidity (melancholia, paranoia) — or being a complete blank unchanged by pleasant or unpleasant impressions (dementia).

The expression of the face may also be *polymorphous* — *i.e.*, there may be abnormally sudden change from gaiety to depression, or from kindness to anger (mania). There may be *incongruity* between the *subject-matter of their ideas* and their facial expression. The patient has most abnormal ideas of exaltation without changing his mien; others relate with an extremely important air most unimportant matters; and others again speak about most indifferent things with an expression of vivid astonishment. Some smile on hearing sad stories, others look grieved on listening to jokes; sometimes sudden fits of laughing or crying occur. At last the expression of face may be abnormally changed with regard to the movements of single muscles. This causes the peculiar laugh, mad grin and grimaces, &c. It would lead too far to speak here about the participation of single muscles in the creation of these symptoms. The whole behaviour also of the patient, the way he dresses, whether he adorns himself specially or not, gives many noteworthy indications. Slight deviations from the general form, a small ribbon in the button-hole, &c., may serve as important starting-points for further investigations. The pockets also of the patient ought to be examined; their contents often tell more than a long account of the patient.

VI. Of **Actions** which are of importance in the diagnosis of mental disease, we have first of all to mention the *speech*, the condition of which has been found out at the preceding examination of the mental condition. As far as the speech gives expression to the illusions (dysological derangements of speech) we need not mention it again. On the other side, we see bradylalia, the slow and difficult way of expressing themselves and answering, in melancholiacs, in consequence of the painful effort any mental operation causes to them, in persons suffering from dementia in consequence of the feebleness of all mental processes; in some paranoiacs, in order to conceal their secrets, or in consequence of hypochondriac ideas. This bradylalia occurs abruptly in hallucinatory states in consequence of the distraction caused by the hallucinations. Sometimes new formation of words is observed which are mostly incorrect (onomatopœsis; dysphrasia vesana). Incessant rapid talking is found in mania, in progressive paralysis, &c. (logorrhœa, Zungen-Delirium); and the words are not

placed according to their meaning, but according to their sound (alliteration). We have further to mention that derangement of speech, in which the patient puts *words devoid of meaning and incoherent*, into the form of a speech (verbigeration). Akataphasia has been called that form of speech which almost exclusively occurs in idiots, in which the patient speaks of himself in the third person, putting his Christian name instead of "I."

Of the greatest importance, however, for the diagnosis of mental disease is that form of derangement of speech described as paralytic or as "stumbling over syllables" (*Silbenstolpern*). This disturbance is sometimes so great and so characteristic that from the first words of the patient the diagnosis may be made as general paralysis, and it will be confirmed by further examination.

Although the derangements of speech mentioned above as a general rule indicate mental disorder, other speech disturbances will be a help in confirming the diagnosis and will therefore be valuable, but alone they are no proof of insanity. To these belong also the dysphasic derangements (aphasia and paraphasia, or word deafness, inability to understand spoken words notwithstanding good hearing) and the derangements of articulation with their manifold variations, which, however, cannot be described here.

The examination of the *writing* will, on the whole, reflect the abnormal conditions of speech mentioned above. As in speech so in writing, paralytics leave out some letters or syllables, or they reverse them. The crossing out or underlining of many words and frequent addition of notes of exclamation indicate on the one hand difficulty in thinking, and on the other an abnormally exaggerated process of thought.

The disturbances also of *reading* (alexia and paralexia), in the examination of which we have to take into consideration whether there are defects of eyesight, will on the whole give analogous phenomena. We have only to mention that at the commencement of severe organic mental derangement, a disturbance in reading is observed—which however also occurs in functional psychoses (hypochondriasis)—in which the patient is able to read only three, four, five consecutive words, but is unable to continue; in this case there is, usually, intense objection to reading altogether.

As regards the actions of the patient, direct observation will only be possible during a prolonged stay in an asylum

under a competent physician. The discipline in an asylum on the one hand, the seclusion from the outer world, its tasks and exciting and irritating influences on the other hand, may however show the patient in quite a different light in the asylum from what he was before and from what he will be again after having left it. In the examination of previous actions we shall have to confront the patient and to try to get at his motives in order to make the diagnosis. The abnormality of the motives is the proof of mental derangement; we have, however, to take into consideration that the motive as such may be right, but that the action has sprung from an insane mind, in so far as those ideas, which under normal conditions may restrain a man from doing a certain action, are abnormally weakened—*e.g.*, in some patients, in dementia, æsthetic and moral ideas are very much disordered or even totally extinguished.

There are also so-called *impulsive actions*, in which those restraining ideas are present, but are at the moment of the action pressed back by the abnormally increased power of the sensation, from which the impulse comes, as in *raptus melancholicus*, epilepsy, &c. These conditions are also observed in imbeciles. "I do just what I think of; afterwards I consider it," said to us an imbecile, who had committed an outrage against morals. But we have to direct our attention in the examination not only to abnormal actions which have been done, but also to actions which have not been done but ought to have been done at a given moment. In certain insane persons it is of greater importance that they do not act when they ought, than that they perform an abnormal action. From all this it follows that an action as such cannot be considered as proof of insanity, but that for this purpose all or some of the co-efficients, which are necessary to commit or leave an action undone, are abnormally deranged. If, however, insanity has been proved, it is indifferent whether abnormal motives can be proved for one action in question or not, because it is quite impossible to take, in a concrete case, all these co-efficients into consideration.

As far as we have now spoken of diagnosis of mental disorders we have supposed that the patient answers our questions—that he speaks. But there are often cases in which the patient does *not* speak, and we have then first to find out the reason why.

(1) The patient does not speak, because he is deaf and dumb. In a dubious case

an expert will have to be consulted. If the patient is deaf and dumb, then he must be considered insane, if he has not had any education, because deaf-mutes cannot develop mentally without teaching, and remain imbeciles. A deaf-mute who has had sufficient education cannot be considered *à priori* as insane, although the law of all civilised nations makes an allowance for this defect, where responsibility as to criminal acts comes into question. Also, if the deaf-mute has had education, and has consequently developed, we have to examine whether—not at all a rare case—he suffers from some mental derangement. We ourselves saw lately a well-educated deaf-mute, who, accused of an outrage against morals, had been declared sane by the first expert, but afterwards examined by ourselves, with the help of a teacher of the deaf and dumb, was declared to be a paranoiac, and was consequently acquitted.

(2) The patient does not speak, because he has no ideas to which he might give expression, or because these ideas are of so little intensity that they cannot be expressed by words. (Idiocy; advanced stage of different forms of Dementia.)

(3) The patient does not speak, because he is aphasic, or he has a difficulty in articulation. Here signs and gestures will have to take the place of words. From these, as well as from the actions of the patient, we have to conclude whether these derangements of speech are or are not the result of a general disease of the brain in which the mind is involved.

(4) The patient does not speak, because certain delusions prevent him, of which the most important are:—

(a) Hypochondriacal delusions; the patient feels his tongue fixed and the jaws closed, or he has no tongue, and believes he is not able to speak in consequence; (b) ideas of persecution, mostly with auditory hallucinations; a voice has told him that, as soon as he should speak, some dreadful fate should befall him, &c.; (c) in conditions of stupor or ecstasy, in which the patient lives in another world, and is inaccessible to any questions and impressions.

The history of the case, the behaviour of the patient, the actions or want of actions, will prove that delusions are the cause of the absence of speech in the patient, and this again proves the existence of insanity.

The examination of the mental conditions has to be followed by an examination of the *body* of the patient, in order to make the diagnosis more sure.

We may begin with the head. Abnormal

size—either too large (hydrocephalus) or too small (microcephalus)—will warrant the conclusion that there is mental derangement. If well marked, this alone may form the foundation of the diagnosis. The skull has to be measured, and attention must be paid to deformities and scars. Then we have to look for other defects (ears, teeth, mouth, genitals, hands, feet, &c.) which, according to our experience, are, with more or less right, considered as marks of degeneration.

Then follows examination of the cerebral nerves. The condition of the pupils (mydriasis, myosis, their inequality, non-reaction to light, loss of accommodation or both) and the nerves of the ocular muscles, the facial, and the hypoglossal (fibrillary tremor of the tongue) has to be well examined. Then follows the examination of the motility and sensibility of the extremities and of the trunk; and of the tendon, skin, and visceral reflexes. Lastly, the fundus of the eye, the ear, and the condition of the vascular system (superficial arteries and the heart); and the internal organs, especially the bladder, have to be examined, which latter must not be neglected, as medical treatment may be applied (ischuria, paradox ischuria); stress must also be laid upon the examination of the urine.

From an exact examination of the body we may in a number of cases obtain proof of disease of the brain, and in that way explain *à priori* mental abnormalities. Moreover, exact examination of the body is always necessary when the question is to diagnose the particular form of mental disease.

When we have proved that there is abnormal derangement of the mental faculties, we have to consider with what conditions mental derangement might possibly be confounded.

The following will have to be taken into consideration:—

(1) Certain hypochondriacs, who cannot be called insane in the general sense of the word, state that they are not able to think, that they have no memory, and that they have lost all interest and all feeling. The examination shows without any difficulty that all these statements are without any foundation; that they go about their business, and there is no defect whatever either of memory or intellect.

(2) Insanity may be confounded with certain feverish conditions, especially meningitis and typhoid fever. With regard to the former bodily symptoms, spasms, rigidity of the neck, &c., will give us the necessary indications; with regard to the latter, examination of the spleen

the fæces, temperature, and the occurrence of roseola. Want of caution in this respect has sometimes sent persons suffering from typhoid fever to an asylum.

(3) Insanity may be confounded with hysterical, hystero-epileptic, and epileptic attacks, which are apt to deceive us when the bodily symptoms have disappeared, and only the psychical changes remain; the history of the case, as well as the rapid course, will lead us to the correct diagnosis. If such an attack extends over some days, or still longer, we have to do with hysterical or epileptic insanity. The limits are not certain.

(4) Insanity may be confounded with intoxication. The duration and intensity will determine whether we have to do with a state of simple intoxication or with acute mental derangement.

(5) Insanity may be simulated. (*See FIGNED INSANITY.*)

(6) Further, we have to mention that there are certain persons who, brought up without any education, with bad surroundings, when scarcely grown up, give themselves to all sorts of vice and to drink, and soon go on from one crime to another. Favoured by a dissipated life, the only change from which is the prison, insanity gradually develops, and we then have before us a compound of criminal nature and insanity. This combination has practically but little importance, because, with regard to responsibility, the existence of mental derangement alone is decisive.

(7) Insanity may be concealed by the patient (dissimulation). In order to escape from the asylum, to prevent legal control, and to frustrate observation intended to prevent suicide or other violent actions, patients conceal their hallucinations, melancholy delusions, and ideas of persecution, and they declare, on being questioned, that they have no longer the symptoms which they had in former times. The behaviour, however, with regard to hallucinations (compare above), intercepted letters, and observation when the patients think themselves unobserved, especially during the night, will lead to discovery. The patients also forget to play their rôle if there is some excitement or if they do not feel well (*see INSANITY, CONCEALMENT OF*).

After the existence of insanity has been proved, the next task is to ascertain the clinical form of the mental derangement. Although a minute explanation of the differential diagnostic symptoms of the different forms is the task of mental science in a special sense, we, however, will give some points important for the special diagnosis. We may for this pur-

pose divide mental derangements into those which are accompanied by an abnormal decrease of intellect, by imbecility and dementia, and those which occur without these forms.

If in a patient abnormal weakness cannot be proved, then the existence of organic disease of the brain—*i.e.*, disease in which we are able to show post-mortem morbid changes in the brain—is excluded; the mental derangement is then a functional one. In this case the disease may consist in a multitude of hallucinations and in complete confusion; the question will then rise about *delirium hallucinatorium*. Too rapid flow of ideas with powerful motor impulses may be the foundation of the disease, and then it raises the question of mania or psychalgia, and depressive delusions may be the foundation of the mental derangement (melancholia). If the history of the case shows a regular change between the two latter forms, we have a circular mental derangement. If the derangement is founded on the primary formation of delusions, with or without hallucinations, we have paranoia. If the history of the case shows that those conditions occur periodically with certain intervals, we have periodical mania, melancholia, or paranoia respectively. We may make a further subdivision of these forms of primary disease, according to their ætiology, and name the forms accordingly. So we may have, if epilepsy, hysteria, or chorea preceded or accompany the disease, epileptic, hysterical mania, &c.; if intoxication is the cause, the name would have to be alcoholism, morphinomania, as the case may be, &c. That through these ætiological relations the disease receives a certain form in other directions is understood.

If imbecility or dementia has been found, the question will have to be answered whether it is mental stupor (with a chance of cure). To give the marks of this disease is the task of special mental science. If this form be excluded, we may classify the conditions of mental weakness in the following manner:—

(1) It is the result of defective development of the brain (idiocy). If the history of the case does not give us a clue, changes of the skull, as explained above, will give the indications necessary for the diagnosis.

(2) It has developed secondarily out of one of the functional derangements mentioned above, which did not terminate in recovery (secondary dementia). The history of the case will give clearness, and sometimes the diagnosis may be safely made without this, from the absence of symptoms of paralysis of the peripheral

nerves, and excluding dementia in organic mental disease, which we are about to explain.

(3) Dementia in consequence of organic disease of the brain. The diagnosis may be made by certain clinical facts, which either point to general disease of the brain (paralytic dementia), senile atrophy of the brain, syphilitic disease of the cerebral arteries, or to local disease (multiple sclerosis, tumour of the brain, apoplectic fits, foci of softening, &c.). Here also details must be left to special mental science.

In some cases longer observation will be necessary before a certain diagnosis can be made, especially if the clinical pictures are not pure but represent mixed forms, as sometimes happens, when very different ætiological causes come together and produce a state (as, e.g., mania and alcoholism), especially also if extensive insane inheritance helps to form a peculiar clinical picture.

The diagnosis of mental derangements also raises the question *when a patient may be considered to be cured*. This may be:—

(1) If abnormal mental symptoms are no longer to be found.

(2) If the patient who has recovered recognises fully the previous symptoms as the product of mental disease.

The proof that a man living in an asylum has completely recovered, and that no residue and no weakening of the intellect remain, will be obtained if the man can return to the former conditions, to his work and his vocation, and is able to perform his duties as before his illness.

In spite of extensive diagnostic material, errors will always be possible and may actually occur.

But it is more frequently the case, if there is any doubt whether the patient is sane or insane, that, on account of temporary remission of symptoms, non-recognition or concealment of abnormal mental conditions, the alienist will declare an insane patient sane than *vice versa*; it is highly improbable that mental peculiarities, mental changes produced by external influences on the mind, should be incorrectly used to prove insanity.

Lastly, we must mention another slight difficulty in the diagnosis—e.g., those cases in the so-called intermediary stage, in which there are doubtless derangements of the mental functions but not insanity in a strict sense. To this group belong those peculiar characters, which are in many cases created by insane inheritance, and also some severe central neuroses, as epilepsy, chorea, and hysteria, in so far as

morbid changes of the intellect have not yet taken place, and the derangements show themselves in their peculiar character; to this group also belong, under the conditions last mentioned, the more severe forms of imperative ideas, and intoxication by alcohol, morphia, &c.

In such cases it is only after long and careful observation that the alienist will be able to answer the question whether the individual is insane or not, at least with regard to an eventual sequestration or from a forensic point of view; in some cases he will not be able to answer the question either in the affirmative or in the negative. Considered from a purely scientific point of view, these cases belong undoubtedly to mental disease.

E. MENDEL.

DIANCEA (διάνοια, a thought; from διά, through; νοός (νοῦς), the mind.) An old term for deliberation, consideration, or thought.

DIANCEOLOGIA (διάνοια, a thought; λόγος, a discourse). Hamilton's term for that department of philosophy which treats of the dianoëtic faculties.

DIANOËTIC (διανοητικός, capable of thought, thinking). Capable of thought. A term applied by Hamilton to denote the operation of the discursive, elaborative, or comparative faculty.

DIATHESIS (INSANE).—**Definition.**

—The recognition of the insane diathesis may be found in Marcé's writings, and Maudsley ("Body and Mind") describes it under the terms insane temperament and diathesis. Clouston ("Mental Diseases") gives a clinical sketch of the subject, which is also treated of by Stearns, Hack Tuke, Spitzka, Revington, and others. Motet, under the term "cérébraux," treats of cases which Lasègue describes as having acquired a morbid (mental) diathesis, and Koch, under the term "Minderwertigkeit," embraces not only congenital but acquired predispositions, which he subdivides into (1) "Disponirt," (2) "Belastung," (3) "Degeneration."

These authors vary very greatly in the scope given to the term; and while some take as their type the eccentrics who pass through life without becoming actually insane, others describe it as reaching from "the mildest form down to complete idiocy" (Maudsley). Others include general neurosis, and acquired predispositions.

Temperament is defined by J. Hutchinson as the sum of the innate physical peculiarities of an individual, excluding all tendencies to disease—the most strongly marked temperament being consistent with perfect health ("Pedigree of Disease").

Diathesis he defines as any bodily condition (inherited or acquired) by which the individual "through a long period, or usually throughout life, is prone to suffer from some peculiar type of disease." This corresponds with the definition by Bucknill and Tuke of the insane diathesis as "the condition of a person who is of really sound mind, yet from constitutional fault is more liable than others to mental disease," except that this definition does not contemplate an *acquired* diathesis.

The insane diathesis then may be more fully described as a *deterioration of brain, inherited or acquired, indicated by peculiarities of function, by tendencies to mental disorder, and often associated with bodily stigmata.*

This cerebro-mental deterioration is relative to the ancestral development, so that individuals of markedly insane diathesis may be and are superior in their mental powers to others of normal but less developed families. The unequal, one-sided expression of the mental energies of the former may even endow such individuals with genius; as examples, Maudsley quotes Chatterton, De Quincey, Cowper, Turner, Tasso, Lamb, and Goldsmith.

Latency.—The *latency* of the diathesis is brought in question in cases of individuals of cerebro-neurotic constitution, who, without observed evidences of the diathesis, *transmit it to their offspring or become insane from very insufficient causes.*

In these the manifestations of the diathesis are probably present, but in so slight a degree as to escape observation.

Such cases may possibly exhibit the "psychische Zartheit" of Koch, a "mental delicacy," difficult to define or differentiate.

The non-development of the diathesis in such cases may be due to favourable conditions of life, or to the activity of another diathesis. The most common example of this is seen in the substitution of phthisis for the cerebral neurosis; cases of strong heredity are uncommon in which members of a family were all either insane or phthisical. In other cases (*vide* Revington, *Journal of Mental Science*, 1888), as many observers have recorded, neuroses, as epilepsy, &c.; effect the suspension of the cerebral diathesis.

The diathesis, when undoubtedly manifested, is primarily based on an abnormal irritability and excitability of the brain, with irregular evolution and unequal development of its functions.

Forms.—Two forms may be distinguished, roughly corresponding to the degrees of brain deterioration. The slighter, the typical insane diathesis, shown in early and precocious functional

evolution, culminating in eccentricity, or even genius, and having affinity with insanity of chronic forms; the other with late and defective evolution, with slight moral and intellectual weakness, with more marked stigmata, and with an affinity to imbecility.

In these cases, the primary dentition, the acquisition of motor-coördinations (walking and speech), the second dentition, the sexual appetite and feelings (and the associated mental characters), may be early or be delayed. The mental vivacity and precocity may amount to genius, or the dulness and slowness may be such as is seen in the "backward" classes.

In the one the emotions are acute, the likings and dislikings rapidly formed, and often quickly changed; in the other the want of feeling is shown by cruelty or insensibility. In the one the moral sense may be excessively acute; in the other dulled or defective, shame being little felt.

The one extreme "moves quickly, feels keenly, thinks clearly" (Clouston); but the judgments are peculiar, usually unwise, unreasonable, and impractical; the opinions original, the expressions witty. They incline to accept hypothesis as fact and are prone to cranks. They are usually markedly receptive, egoistic, and impulsive. In the other extreme the movements are slow, the reasoning dull and defective in clearness, and the imagination especially dull. Their sense impressions are predominant in their mental lives, and they are prone to have fixed ideas.

In both, the functional irritability is expressed by convulsions from teething or other irritation, by delirium from slight fever, by sleep-walking and vivid dreaming. By changes of character during second dentition, and by sexual perversions. By tendency to excess in, or excessive susceptibility to, alcoholic or other stimulants; by liability to shock, and by inability to endure nutritional or mental stress; all their bodily disorders are affected by their neurotic irritability.

In the higher type, the features may be well formed and regular, the facial angle good, but the head smaller than the ancestral type, especially in the frontal width; in the lower, the stigmata of irregular, asymmetrical features and head, low facial angle, ill-shaped, badly placed ears, and high, narrow palate are often present.

The higher forms of the diathesis may pass through life as geniuses, as apostles of cranks, or as eccentrics, often celibate and solitary. If they break down mentally, recovery is often quick in early life,

but later they tend to chronic forms of disorder.

In the lower forms they may develop dog-like fidelity to persons, &c., and under favourable conditions escape insanity, but if they develop mental disorder (usually from sexual or alcoholic excesses, or from privation) they tend to dementia.

Widely as these extremes differ, it is still scarcely practicable or desirable to divide them, so much do they overlap and commingle.

The predispositions to mental disorder, imposed by environmental conditions during gestation or childhood, should be relegated to the class of cases considered as developmentally diathetic, although no pathologic line can be drawn between them and the acquired predispositions, to which some apply the term diathesis.

Acquired Diathesis.—The manifestations of acquired cerebro-mental deterioration are so wide, extending from mere arrest of possible development (as in the cram-stunted brain) to absolute degeneration (Lasègue's *cérébraux*), and from mere loss of an intellectual pleasure (*e.g.*, the appreciation of poetry) to the definite loss of function, that the term diathesis can scarcely embrace all these.

Cases of temporary cerebral exhaustion (Elam's "*cérébria*"), on the one hand, and cases of progressive cerebral degeneration, such as Lasègue's *cérébraux*, on the other, must be excluded.

The term, acquired diathesis, if accepted, should include only those who have acquired life-long peculiarities, transmitting to offspring a tendency to mental disorder.

The commonest causes are self-abuse and over-work during adolescence, drink, over-work and anxiety, fevers, sunstroke, traumatism, solitariness, and attacks of mental disorder later in life.

The resulting cases are typified in their extremes, as in the diathesis of development; the causes which act solely or directly on the brain producing the higher form, and the causes (such as drink, self-abuse, &c.) which tend to produce general neurosis, producing especially the lower forms.

These acquired conditions are often exaggerated in the offspring. Thus, in a case in the writer's experience, the children born after a head injury (producing mental change, but not insanity), suffered from mental disorders, those born prior to it being healthy.

These acquired conditions are especially characterised by inability to go long without food, by inability to perform the same amount of mental work as formerly, by

disorders of sleep, by increased irritability and excitability, and by changes of character, mental, moral and emotional; all these acquired characteristics being foreign to the normal character of the individual.

Mental disorder may occur in these cases from inadequate causes—*e.g.*, from shock or slight mental or nutritional stress: usually the emotional disorders predominate, and recovery leaves the individual with an exaggeration of the previous condition.

H. RAYNER.

[References.—Ueber neuropathische Diathesis, Arndt, Sitzungsber. d. med. Ver. in Greifswald, 1874. Berl. Klin. Wochenschrift, 1875. Des névroses Diathésiques, Berthier, Paris, 1875. Physiology and Pathology of the Mind, Maudsley, 1879.]

DIET.—Insanity being a disease, in most instances, of low vitality, a full, nutritious and easily digestible diet is of the first importance in its treatment.

For private patients the dietetic arrangements which are usual among the class of persons from which they are derived, have to be continued, and every endeavour should be made to secure for them varied and appetising food of the best quality, carefully prepared and properly served.

There are probably no persons so hypercritical about their food as the insane of the higher class. They are frequently full of fancies and peculiarities with reference to it, but every effort should be made, by careful individual attention, to gratify those whims which are not either manifestly absurd, or contra-indicated by sanitary requirements.

The digestive disturbance, and such delusions as spring from it, which complicate insanity, are susceptible of considerable amelioration by careful attention to dietetic considerations.

Bad teeth, and defective mastication from other causes, may need to be supplemented by minced and soft food; and constipation will frequently yield to the habitual use of brown bread, and a liberal supply of green vegetables and fruit.

Medicines should be administered in food only under the most exceptional circumstances, for their discovery by the patient excites suspicion, and often leads to refusal of food altogether.

This does not apply to maltine and pepsine, which may be used in cases where there is faulty digestion, with great advantage. Maltine, especially, makes an excellent addition to starchy foods, either incorporated with them, or spread upon bread and butter, and is both palatable and fattening.

In special cases, Peptonoids, Bovril,

TABLE I.

Articles of Food.	In 100 parts.				
	Water.	Albu- minates.	Fats.	Carbo- hydrates.	Salts.
Meat of best quality, with little fat, like beef steak	74.4	20.5	3.5	—	1.6
Uncooked meat of the ordinary kind, beef and mutton	75.0	15.0	8.4	—	1.6
Cooked meat, roast or boiled, no dripping being lost	54.0	27.6	15.45	—	2.95
Bread, white wheaten, of average quality	40.0	8.0	1.5	49.2	1.3
Wheat flour, average quality	15.0	11.0	2.0	70.3	1.7
Biscuit	8.0	15.6	1.3	73.4	1.7
Rice	10.0	5.0	0.8	83.2	0.5
Oatmeal	15.0	12.6	5.6	6.3	3.0
Maize	13.5	10.0	6.7	64.5	1.4
Peas (dry)	15.0	22.0	2.0	53.0	2.4
Potatoes	74.0	1.5	0.1	23.4	1.0
Carrots (cellulose excluded)	85.0	0.6	0.25	8.4	0.7
Cabbage	91.0	0.2	0.5	5.8	0.7
Butter	6.0	0.3	91.0	—	2.7
Eggs (deduct 10 per cent. for weight of shell)	73.5	13.5	11.6	—	1.0
Cheese	36.8	33.5	24.3	—	5.4
Milk (sp. gr. 1030 and over)	86.7	4.0	3.7	5.0	0.6
„ (sp. gr. 1026)	90.0	3.0	2.5	3.9	0.5
Sugar	3.0	—	—	96.5	0.5

TABLE II.

Articles of Food.	One ounce (437.5 grains) contains in its natural state in grains.			
	Water.	Nitrogen.	Carbon.	Salts.
Uncooked meat	328.0	10.35	64.0	7.0
Uncooked fat meat	275.6	9.6	98.3	16.0
Cooked meat	236.0	19.0	117.7	13.0
Bread	175.0	5.5	119.0	5.6
Wheat flour	65.6	7.6	169.0	7.4
Biscuit	35.0	22.7	183.0	7.4
Rice	43.7	3.5	176.0	2.2
Oatmeal	65.6	8.7	172.0	13.0
Maize	59.0	7.0	176.0	6.0
Peas	65.6	15.0	161.0	10.0
Potatoes	324.0	1.0	49.0	4.4
Carrots	398.0	0.4	18.0	3.0
Butter	26.0	0.2	315.0	11.8
Eggs	321.0	9.3	71.5	4.4
Cheese	161.0	23.0	162.0	23.6
Milk	380.0	2.75	30.8	2.6
Sugar	13.0	—	187.0	2.0

Liebig's Extract, beef tea, entire wheat flour gruel, and other artificial or prepared foods, may be employed with the best results.

While the diet of insane *invalids* of all classes has to be regulated by considerations such as these, that of the ordinary pauper inmates of county and borough asylums must necessarily be limited by

restrictions based upon the question of cost, and the actual requirements of the body for the maintenance of health and weight. It is therefore requisite to refer to these points in detail.

In order to preserve health and prevent loss of weight a more or less definite quantity and proportion of four classes of food would seem to be essential: (1) Nitro-

TABLE III.

	BREAKFAST.				DINNER.												SUPPER.												
	MALES.		FEMALES.		MALES.				FEMALES.				MALES.		FEMALES.														
	Bread.	Butter.	Pnt.	Oz.	Bread.	Uncooked Meat.	Bread.	Vegetables.	Soup.	Meat Pie.	Irish Stew.	Suet or Plum Pudding.	Uncooked Meat.	Bread.	Vegetables.	Soup.	Meat Pie.	Irish Stew.	Suet or Plum Pudding.	Bread.	Butter.	Tea.	Oz.	Pnt.	Oz.	Pnt.			
Sunday	7	½	1	5	7	3	12	—	—	—	—	7	2	12	—	—	—	—	—	7	½	1	5	½	1	5	½	1	
Monday	7	½	1	5	3	4	—	1½	—	—	—	3	4	—	—	—	—	—	—	7	½	1	5	½	1	5	½	1	
Tuesday	7	½	1	5	6	3	12	—	—	—	—	6	2	12	—	—	—	—	—	7	½	1	5	½	1	5	½	1	
Wednesday	7	½	1	5	4	—	—	—	12	—	—	4	—	—	—	—	12	—	—	7	½	1	5	½	1	5	½	1	
Thursday	7	½	1	5	7	3	12	—	—	—	—	7	2	12	—	—	—	—	—	7	½	1	5	½	1	5	½	1	
Friday	7	½	1	5	4	3	—	—	—	1	—	4	2	—	—	—	—	1	—	7	½	1	5	½	1	5	½	1	
Saturday	7	½	1	5	4	—	8	—	—	—	8	4	—	8	—	—	—	—	—	7	½	1	5	½	1	5	½	1	
	49	2½	7	35	35	16	44	1½	12	1	8	35	12	44	1	12	1	12	1	7	49	2½	7	35	2½	7	35	2½	7

genous matters. (2) Fats. (3) Starch and sugar. (4) Water and salts.

Moleschott gives the following as the standard diet for a male European adult of average height (5 ft. 6 in. to 5 ft. 10 in.), and weight (140 to 160 pounds) in moderate work. It of course requires to be adapted to variations in all these particulars.

Water-free substances daily.	Ounces Avoir.
Albuminous substances . . .	4.587
Fatty " . . .	2.964
Carbo-hydrates . . .	14.257
Salts . . .	1.058
	22.866

This is dry food. Food as usually consumed contains from 50 to 60 per cent. of water, and of this an adult man would therefore require from 34 to 46 ounces daily. He would also need from 50 to 80 ounces of additional water.

For calculating diets, Parkes gives Tables I. and II. (p. 385).

The standard daily diet of an adult man calculated in this way gives

Nitrogen . . .	316.5 grains
Carbon . . .	4862 "
Salts . . .	361 "

Table III. (p. 386) would be a fairly representative diet table for an ordinary pauper asylum.

From 12 to 16 ounces of fish is frequently substituted for meat on one day in the week. It is procurable at a cheap rate from the wholesale fish salesmen at Grimsby.

In addition to the above diet working patients are usually supplied with 4 ounces of bread, 2 ounces of cheese, and a pint of beer or coffee. Beer as an ordinary article of diet is rapidly falling into disuse in asylums.

The composition of the tea, coffee, or cocoa per gallon is generally as follows:—

Tea—Tea 1 ounce, sugar 4 ounces, milk 1 pint, water 7 pints.

Coffee—Coffee 2 ounces, chicory $\frac{1}{2}$ ounce, sugar 4 ounces, milk 1 pint, water 7 pints.

Cocoa—Cocoa 3 ounces, sugar 4 ounces, milk 2 pints, water 6 pints.

The following recipes will give an idea as to the relative proportions of the several ingredients in ordinary articles of diet:—

Pea-soup for 100 patients—

The liquor of cooked meat, bones, &c., 25 lbs. meat; 18 lbs. split peas; turnips, cabbage, parsnip, leeks, onions, artichokes, or other vegetables, herbs, salt and pepper; water to make up $12\frac{1}{2}$ gallons.

Meat pie for 100 patients—

Dripping; flour, 31 lbs; potatoes, 51 lbs.; meat, 13 lbs.

Meat pudding for 100 patients—

Twenty-five lbs. meat; 25 lbs. flour.

Meat stew—

Twenty-five lbs. meat, with potatoes and other vegetables, and rice.

Plum pudding, 100 lbs. weight—

Flour, 47 lbs.; suet, 7 lbs.; raisins, 8 lbs.; currants, 7 lbs.

The weekly cost of provisions for each patient must of course largely depend upon the current price of the various articles of food, but it may be assumed generally that less than three shillings would be unwisely low, and much above that sum unnecessarily high.

F. NEEDHAM.

DIGITALIS.—In insanity dependent upon some forms of heart disease, and under particular associated conditions, digitalis is useful by its effect on the heart and the circulation, both general and cerebral. Whether to employ or avoid it here, will be decided by the usual rules.

So, also, in nervous symptoms due to vascular conditions, as, for example, where defective tone of blood-vessels occasions sleeplessness by night and drowsiness by day, digitalis relieves by bracing the arterial vessels of the brain, which, when the recumbent position is resumed at night, too readily relax under the swelling blood-stream which floods the brain with blood, defective in purity and quality, and drives away sleep.

Besides the above heart- and vessel-cases, we* found digitalis valuable in mental excitement of chronic, subacute or acute mania, and the excitement sometimes attending general paralysis of the insane, melancholia, or dementia. The majority of the cases were of chronic mania or mental excitement. Some of these were subject to excitement of markedly paroxysmal character; in others the excitement was subcontinuous, or occasionally even continuous. The effects of digitalis in allaying maniacal excitement were much more distinctly marked in the group exhibiting excitement of the paroxysmal character. Upon the average pulse-frequency of the patients thus treated the usual effects of the foxglove tincture was to reduce the high pulse-frequency associated with paroxysmal excitement which the digitalis calmed; and to reduce a slightly elevated pulse-frequency in paroxysms similarly controlled and calmed, to a normal or subnormal rate. If paroxysmal excite-

* Journ. Ment. Sci., July 1873, p. 183.

ment, associated with a high pulse, was not or only slightly or imperfectly controlled by the digitalis, the pulse-frequency usually sank to about midway between the high pulse-rate of an untreated paroxysm and the rate customary to the particular patient during the intermissions of excitement. In *subcontinuous* maniacal excitement of chronic or subacute mania or general paralysis, whatever the pulse-frequency might be—high, moderate or low—the usual but not necessary or invariable tendency of digitalis was to lower it, and a calming effect of digitalis upon the subcontinuous excitement was usually associated with a reduction of the pulse-rate, sometimes below normal. Yet decided reduction of the pulse-rate by digitalis was not always attended with marked benefit to subcontinuous excitement, when the pulse-rate usual to the patient in remissions, and that attending the excitement, were both comparatively low.

Anorexia, nausea or vomiting were now and then produced. Although this gastric disturbance is often preceded and always accompanied by at least temporary cessation of outwardly manifested excitement, it is an evil to be carefully avoided; also to be avoided are effects such as faintness, irregularity or intermittency or rapidity of pulse; and extended experience shows that by mild doses of digitalis (ἡx to ἡxv, tr.) the good results of full doses are attainable without the ills sometimes accompanying the latter. The best effects are in those (usually young) whose blood-vessels and heart are free from degeneration. Those taking it should be kept strictly in the recumbent position.

Some have found the best effects yielded by digitalis to occur in stilling or preventing epileptic excitement, often of hysterical form, and, in some examples, occurring chiefly at the menses; others in recent acute mania of amenorrhœal women; others have obtained little or no benefit in acute or recurrent mania. A rapid, failing pulse, and palpable vaso-motor disturbance are believed to be indications for its use. Some have extolled its action in the excited middle stages of general paralysis; but in that condition, although small or medium doses are beneficial, it is not altogether a safe remedy in the full doses recommended. Nor do we believe in the virtues formerly claimed for it in mental disorders due to inflammatory cerebral and meningeal lesions. Nor do we admit the safety of the huge doses (ἄss-ἄj tr.) sometimes given in mania or in delirium tremens. But in some

examples of delirium tremens, or of the delirium, insomnia and tremor or prostration in the later course of fevers or of exhausting inflammations, small and repeated doses of digitalis are beneficially invigorating and bracing.

Digitalis may be found advantageous in various cardiac, functional or organic maladies, in nervous headache, neuralgia, epilepsy, spasmodic asthma, phthisis, hæmorrhages, dropsy, inflammations, fevers, rheumatism and spermatorrhœa.

Small doses increase ventricular systole and arterial tension, slowing the pulse. Large doses make the heart-beats to be frequent, feeble, irregular, and finally the increased blood-pressure to fall rapidly, and the heart to stop, perhaps. Varying with dose and circumstances in its effects on heart and circulation, digitalis may act therapeutically through them, by strengthening a weak heart, or increasing cardiac tone, or lessening cardiac frequency or irregularity, or calming over-powerful ill-directed action of heart.

W. J. MICKLE.

DINOMANIA (δῖνος, vertigo; *μανία*, madness). A synonym of Dancing Mania, Choreomania.

DIPSOMANIA (δίψα, thirst; *μανία*, madness). (Fr. *dipsomanie*; Ger. *Trunksucht*, *Saufsucht*.)—In taking to alcohol all drinkers do not proceed in the same manner, and alcohol does not attract them all equally. Although excess in drink produces in all cases one and the same intoxication, the psychological cause of this excess is different in every subject. The psychological classification of drinkers, based on the analysis of intellectual processes which lead a man to get intoxicated knowingly, allows us to state that all these phenomena have for the first cause a want of mental equilibrium, especially between the instincts and tendencies on the one side and the will on the other, which, however, is powerless in its opposition. Having formed this opinion, we may answer the question, whether drunkenness is a pathological condition, in the affirmative: drinkers conscious of their excesses are persons who have lost their mental equilibrium and are abnormal from a cerebral point of view. (We have treated of this question at greater length in our book "Hérédité et Alcoolisme," Paris, 1889.)

Thus the **types** of drinkers may be divided into **three** classes:

(1) Drinkers with an abnormal instinct (common drunkards; individuals with defective moral sense and want of moral equilibrium).

(2) Drinkers with an abnormal tendency

(drinkers through taste, passion, weak-mindedness, and want of mental equilibrium).

(3) Drinkers through impulse; in this category alcohol plays only a secondary rôle, the principal cause being the pathological impulse.

To the last class the name of *dipsomaniacs* has been given. The irresistible proclivity to drink, *dipsomania*, presents such a characteristic aspect that many authors have gone so far as to consider it a disease by itself. Although its characteristics are so distinct, it is surprising to find that all authors do not comprise under this term the same group of cases. This is probably due to the circumstance that the proclivity to drink immoderately often assumes a quasi-impulsive form without, however, being caused by an actual impulse. The difference in the descriptions is therefore to a great extent caused by not attaching a uniform meaning to the term pathological impulse, and also by a divergence of opinion with regard to the ætiology of dipsomania. Some consider it a separate disease; others as monomania; others as a variety of lypomania; and again others as a kind of periodic insanity. It is not surprising that the nosological descriptions, being founded on such a variety of basis, are so little in conformity. In order to harmonise these views and to lay down an exact ætiological and nosographical outline of dipsomania, we must make a most scrupulous observation of facts, and not take our standpoint only upon theory which it will be much better to give at the conclusion of this article.

In order to establish a solid basis on which to found our description of dipsomania, namely, to study summarily the pathological impulses as understood by the French school and especially by the school of Magnan, it is necessary to agree on the meaning of the word "impulse," which at the same time means to agree on the term dipsomania. We may lay down the two following definitions of pathological obsession and impulse:

Pathological obsession is a morbid syndrome, characterised by the sudden appearance of an idea or of a group of ideas, which in the form of paroxysms come over a perfectly lucid mind, and interrupt for a time the normal course of association of ideas, in spite of the efforts of the will, the impotence of which shows itself in intense normal anguish and suffering.

Pathological impulse is a morbid syndrome, characterised by an action or a series of actions accomplished by a perfectly conscious individual, without and

indeed in spite of the intervention of the will, the impotence of which causes intense moral anguish and suffering.

Every obsession and every impulse, whatever their object may be, correspond to the two definitions. These are so many clinical units, in spite of outward appearance to the contrary. They may all be reduced to the same psychological elements. Whether a patient is obsessed by the idea of committing murder or suicide, or stealing (kleptomania), or agoraphobia, or *délire de toucher*, &c., the same factors may always be found, and may be traced back to the one phenomenon, arrest of will, which causes the patient's suffering. Pathological obsession and impulse based on such definite and uniform psychological and clinical characters form that group of syndromes which Magnan comprehends under the name of *syndromes épisodiques de la folie des dégénérés*. If we apply what we have said above to the obsession and impulse to drink, we have at once established the definition of dipsomania, and at the same time described the outline of the history of this syndrome.

A. Pure Dipsomania.—*Dipsomania is a morbid condition, characterised by the irresistible obsession and impulse to drink, coming on in attacks, during which the patients are in a condition of impotence of will and manifest great anguish.* According to our general facts, it appears that dipsomania must not be considered as a distinct disease, but as a secondary symtomatological condition, for the same reasons as the other impulses in a mental condition, the nature of which we shall have to determine.

Studied by itself, dipsomania may be methodically described, because it always presents identical characters. It generally comes on in attacks presenting the character of intermission; so much so sometimes that certain patients have one attack only during the whole course of their existence. The attack is preceded by a *prodromic stage*, then it enters on its *course*, which is followed by a period of *recovery*.

Prodromic Stage.—This is almost constantly characterised by mental disorder of a depressive nature, which is very vague, consisting in an indefinite sadness and uneasiness; the patients lose energy and courage, have a feeling of inability, and throw up their occupation; they have the presentiment of some approaching event; their affective sentiments are diminished; indolent and apathic, they suffer from a kind of moral anæsthesia, which takes complete possession of them. At the same time anorexia, insomnia, and

a sensation of præcordial anxiety may be observed.

If we were to consider these symptoms only, we might suppose that we had before us the commencement of an attack of melancholia. These phenomena are sometimes so prominent, the anxiety so painful, that we easily understand how some observers, struck with these so distinctly depressive characters of the syndrome, considered dipsomania as a variety of lypemania with anxiety. But this prodromic period is generally very short. After a few hours or days, obsession and impulse appear and become masters of the situation.

The *idea* to take drink rises then, soon followed by the want to take drink. This want, at first insignificant, grows after a while and becomes more powerful, invariably accompanied by somatic and mental symptoms: dryness of the throat, uncomfortable warmth, a sense of constriction of the chest, and præcordial anxiety. These sensations drive the patient to seek relief in drink, although they are afraid to do so, without accounting for the latter sensation. The sense of thirst is here dominant, but the craving for a stimulating drink has not yet assumed a definite shape. Nothing shows better that the desire for alcoholic drink is only secondary and does not appear in the first instance, and that the want alone for some drink is the principal symptom. The want of a stimulant makes itself felt later on. This is so true that some patients begin with taking water, mucilaginous or soothing drinks (Magnan). But the relief is only temporary; the want reappears still more irresistibly; certain patients then take wine, without however being satisfied by it, and then take to alcohol, which instead of relieving the morbid appetite, only increases it. The desire, once excited, knows no limits; one glass of alcohol is followed by another; the impulse cannot be moderated because the will has given up the struggle, and the disease enters on its course.

At the same time mental disorders show themselves, which are of very great importance. Uneasy about his condition and conscious of the danger, the patient commences to strive desperately against the impulse, but this strife, being absolutely useless, increases his anguish; he puts all his energy together, and makes a last effort to resist, however much he is demoralised, for he knows beforehand that he will be too weak. Then the patient tries a thousand means to prevent himself drinking: sometimes he confides himself

to his friends and asks to be protected against himself; sometimes locks up all his spirits and gives all his money away; and sometimes he gathers his children and friends around him, thinking that in their presence he would not succumb to the degrading temptation. But all this does not save him, because the want for drink besets him mercilessly. Some patients who have already had an attack and are consequently more anxious, go to see a medical man; others ask to be sequestered, in order to prevent an accident; and others again adulterate their beverages, in order to become disgusted with them. All this is of no use; they know that their fall is imminent; they complain, sigh, and to raise their courage argue with themselves, declare their disgust with drunkenness, make to themselves a dreadful picture of its consequences, and think of the shame intemperance will bring upon them. Nothing is more deplorable than the sight of such a struggle in which the patient succumbs, being in a state of complete lucidity, but temporarily reduced to a condition of impotence of will.

Thus we have seen realised the symptoms, sketched out in our theoretical scheme of impulse: irresistibility of the phenomenon, painful anguish, and desperate struggle, whilst consciousness is fully preserved, and never disappears completely. Such is the prodromic period, which generally lasts from a few hours to three or four days.

These symptoms naturally vary in intensity, according to the degree of the patient's susceptibility. The symptoms of depression are often almost absent, especially in patients with weak intellect; in these individuals the prodromic stage often lasts a long time, far beyond the limits indicated and the syndrome has its real origin in a series of mental conditions, which lead on to the impulse, and the suddenness of the latter is therefore only apparent. The preparatory conditions are these:

(1) The nerve-endings in the mucous membrane of the digestive apparatus have on one occasion been impressed by contact with some stimulant.

(2) These impressions are retained by the mind in the form of well-defined images.

(3) The properties of the liquor absorbed have produced psychical satisfaction or some special sensation.

(4) The sensation is recalled and sudden appetite awakened without any real need.

(5) The desire to reproduce the sensation becomes imperious and returns under the form of *obsession*.

(6) The obsession becomes *impulse*, thus completing the syndrome.

This psychological mechanism is in all cases the same, although the commencement is often masked, when the events follow each other rapidly and the obsession seems to appear suddenly, coming one does not know whence, and suddenly bursting into the field of consciousness. In these cases there has probably been some unconscious cerebration. To assume spontaneous generation would be nonsensical.

However this may be, where there is a long prodromic period the impulse becomes slowly imperious, and anxiety and uneasiness are consequently less vivid. Signs of depression are almost absent; the patients try to resist, at first weakly, then more energetically, but gradually they give in and satisfy their secret desire. This satisfaction, however, is not sufficient; they do it again and again, and imperceptibly the impulse comes on with its painful characters—complete irresistibility and terrible anguish. The patient has been sliding down the dangerous slope, but now it is too late; the struggle is heroic, but in vain, and the disease enters on its course, as above mentioned.

Course.—From the time the patient falls he ceases to struggle against his temptation; he has not even time to think about it. He goes from debauchery to debauchery, from degradation to degradation, and finds himself in drunken revelries without the slightest attempt to resist. He has one purpose only; to procure by all possible means the drink so ardently desired, and this imperious desire to satisfy the impulse completely deranges intellect and sentiments. Reason has no longer any regulating control, and the patient has no time to appreciate the import of his actions. The faculties are completely disordered, and the dipsomaniacal impulse causes an actual *délire des actes*, making the patient dangerous to himself and his surroundings. Most reprehensible actions (robbery, prostitution, begging, &c.) are committed without hesitation, supposing that the object be to procure intoxicating drink.

During the most acute phase of the attack the condition of the conscience undergoes profound modification. Perfectly clear up to this point it becomes soon obscured, but never completely; it continues to be alive, however little so. We have seen patients avoid coming into contact with strangers; in fact, this is quite a common thing. They often try to conceal their debauchery, of which they are ashamed; they do not show them-

selves publicly, except when they are forced to go out in order to get the desired drink, or when they are overcome by drunkenness in a public place. This is a very characteristic attitude of the dipsomaniac. During the demi-remissions separating two debaucheries conscience becomes again sensitive, and the strife recommences with its inevitable anguish; but it is short, and terminates in a fresh defeat. Some dipsomaniacs make use of the intermissions to attempt suicide, seeking in death forgetfulness from their disease. Thus an overmastering want undermines the whole personality. During the attack the dipsomaniac is nothing more than an automaton set in motion by his appetites; he completely loses the management of himself and his interests, compromises his honour, and causes much damage to others in consequence of the harmful actions he commits. This is for him a new source of anguish and the moral torture he suffers deserves our deepest pity.

The quantity of alcohol absorbed varies according to the degree of the patient's resistance. They generally take enormous quantities in a short time; they drink for the purpose of drinking and no longer for the sake of taste or pleasure. The consequences are easy to foresee. Contrary to the opinion of Lasègue, who thought that dipsomaniacs never manifest the symptoms of alcoholism, it is well known that dipsomaniacs, even if their attacks do not last a long time, show symptoms of alcoholic poisoning—excitement, tremor, *délire spécial*, nightmares, hallucinations, &c. These symptoms are observed especially in individuals of weak mind. Lasègue's opinion is so far correct, that the dipsomaniac is quite a sober individual during the intervals between the attacks, and that a certain amount of poison in the system is necessary in order to produce special symptoms. But, whoever the drinker may be, it is difficult to imagine how a poison should not cause symptoms, in however small quantity it is absorbed. However this may be, the alcoholic symptoms are always secondary to the attack of dipsomania, and are but *complications; alcoholism is a complication of dipsomania, but is never its cause.*

Duration, Termination.—The intensity and duration of an attack of dipsomania vary according to the case. Sometimes an attack consists of one series of excesses only, lasting a few days, after which the patient recovers, but this is exceptional. Generally, a complete attack lasts several weeks, and is composed of a series of shorter attacks with intermissions,

during which the patient, fully conscious, recommences to strive against the impulse. The fate of the patients varies according to the nature of the actions they commit. Rarely can they be allowed to remain with their family till the end of the attack; some wish to be looked after in an asylum; mostly they are sequestered after having committed some outrage, or in consequence of the pathological character of their intoxication being recognised, or in consequence of alcoholic complications.

Left alone an attack may pass off spontaneously, but it will last a long time. The patient himself is the means of his cure; his excesses at last exhaust him, and at the same time the erethism of the cortex subsides. Sequestered and deprived of drink, dipsomaniacs soon recover. At first—to start with the first series of excesses—the imperious want reappears: the patient, deprived of the means of satisfying his desire, is in a state of great anguish, but under appropriate treatment, the vertebral irritation subsides. Symptoms of alcoholism, if they exist, are but of short duration. The attack of dipsomania leaves behind a condition of moral depression and a weakening of physical strength, which are recovered from after many weeks of convalescence. The patient, ashamed and discouraged, repents bitterly his intemperance, deploras the position to which it has brought him, and, different from the habitual drunkard, he seeks the cause of his demoralisation in his impotency, of which he is conscious, and in a certain dread of the future.

Convalescence is frequently interrupted by slight and very short returns of the attacks, which become less and less painful from the moment they are no more supported by stimulants

Relapses.—An attack of dipsomania may remain an isolated event in the life of a patient, an important factor which, together with other considerations, invalidates the opinion of those authors who make dipsomania a periodical psychosis. Most frequently the attacks repeat themselves for an indefinite length of time under the influence of intercurrent causes of more or less importance. If the attacks assume a periodical character, they are often separated by intervals of some years; then undoubtedly through diminution of organic and mental power of resistance of the patient, they gradually become more frequent, until they appear several times every year, and necessitate almost continuous sequestration. Fortunately, these relapses may be avoided, and a well-directed cerebral

hygiene generally suffices to prevent a return. The number of dipsomaniacs who have had in their life only two or three attacks is pretty considerable. Generally speaking, long and serious attacks, consequent on exciting causes, as the puerperal state or *menopause*, are less subject to relapses. When the attacks are short and consequent on insignificant causes, they indicate a particular mental instability, and frequent relapses have to be feared.

Nature of the Disease.—Ætiology.—

There have been many classifications. Salvatori (1817), Brühl-Cramer and Hufeland (1819) made it a psychosis, which they connected with alcoholism. Attributing too great an importance to the passion for intoxicating drinks, they committed an error, into which many have fallen—namely, to suppose that alcoholism might lead to dipsomania. At the time when “monomania” was in the ascendant, Esquirol, Trélat, Marcé, Dagonet, and Linas had no hesitation in introducing dipsomania into the group of partial insanities; even Foville afterwards believed it to be such. Then numerous and more divergent opinions were formed. Morel described his “*délire émotif*,” in which he comprised all impulses, inclusive of dipsomania. He admits that this affection may be a complication of insanity, and is met with in different varieties of hereditary alienation. Thus the ætiological question comes in for the first time; but this conception, although the first step towards truth, was not accepted by all authors. Ball in 1833 still considered dipsomania as partial insanity, whilst Krafft-Ebing and Ritti, laying stress on another point of its history—its periodicity—classed it among periodical insanities. Others, again, struck by the melancholy aspect of the patients, especially at the commencement of the attack, saw in dipsomania a variety of melancholia (*mélancolie impulsive ou anxieuse*).

Again, others, English authors in particular, extending too far the outline of the syndrome, and losing sight of the well-defined character of pathological impulse, include in their description conditions which are but analogous to dipsomania, and are much better connected with alcoholism. They destroy the unity of the syndrome by describing several forms: the acute form, the chronic form, the periodical form (Hutcheson), and also an hereditary and an acquired form (Bucknill and Hack Tuke), or, lastly, an impulsive variety, and a periodical and recurrent variety (Skæ). Here recurs the error of former authors, who tried to establish that excess in drink might be

the cause of dipsomania. Lastly, Schüle is of opinion that this syndrome is an impulse which may be observed in a series of hysterical, hypochondriac, neurasthenic, and periodical psychoses.

Such are the different hypotheses brought forward up to the present day. We reserve that of Magnan, which we believe to be the most plausible, and which we shall give after having criticised the preceding ones.

The doctrine of monomania has had its day. Few alienists maintain now that a man may present partial derangement of the mind, thus assuming a double personality, which neither psychology nor observation of the patients confirms.

To make dipsomania a variety of lypemania means to connect it with an inconstant phenomenon, and to neglect other constant and invariable characters, the most important of which is the impulse. The same criticism applies to those alienists who see in dipsomania only a periodical insanity. To call an affection periodical does not help us as to its innermost nature; and, besides, periodicity is not dangerous, and simply indicates a soil eminently favourable for mental disorder; the periodical return of dipsomaniacal attacks has no more importance than the return of eczema in an arthritic patient or of symptomatic epiphenomena in a morbid diathesis. On the other hand, it is scarcely possible to consider dipsomania as a distinct, isolated psychosis; its general character connects it too much with other impulses observed in lunatics, who have lucid intervals, to allow of its not being classed in the same group. This is the group which Morel constituted and called "*délire émotif*," an important work, which unfortunately he left incomplete. We have to regret that this eminent alienist does not proceed further in his grouping and did not attempt to classify the emotional symptoms. However it may be, Morel made the first great step forward in this question. Magnan took it up later on, and gave a solution, which at the present time seems to us to be most in conformity with clinical observation.

Two important matters are, as a matter of fact, observed: all alienists, on the one hand, agree in seeing in dipsomania an impulse; and, on the other hand, almost all of them have recognised that this syndrome is met with in individuals with an hereditary incubus. In uniting these two terms, Magnan has completed the rough sketch of Morel, by constituting in nosography what he has called "the syndromes of insanity in individuals with insane inheritance" (*les syndromes de la*

folie des héréditaires). Considering that all impulsive individuals have a peculiar mental condition, characterised by defective mental equilibrium, considering also that this mental defect is a profound one, begins in early childhood and accompanies the patient through the whole of his existence, and that this condition has its origin in inheritance, it is clear that impulses are a new condition of disequilibrium, which is characteristic of mental degeneration. Most diverse impulses may co-exist or take each other's place in a degenerated individual; they represent so many different aspects of one and the same patient.

Consequently, dipsomania appears to be one of the numerous phenomena of which the life of degenerated individuals is full; it is no longer an isolated psychosis, but a syndrome, and its periodicity reflects the mental instability of the patient. This is the result of our investigations.

We shall no longer insist on the refutation of that opinion which sees in dipsomania only a peculiar form of alcoholism. Alcoholism is only secondary; the impulse is essential. A dipsomaniac is above all things an impulsive individual; he takes alcohol as under other circumstances, obeying the same impulse, he would take other intoxicants—morphia, ether, chloroform, or cocaine. A cocomaniac or etheromaniac is a dipsomaniac for the same reason as the patient who gives himself through impulse to alcoholic debauchery, because alcohol is of all intoxicants the most widely spread and the most easily procurable.

Some authors have attributed great importance to the ætiological factors, as the puerperal state, the *menopause*, and moral causes.

It is evident that these circumstances act only as occasional and not specific causes. We may sum up the latter in one formula: *in a predisposed individual every violent moral shock, every physiological disturbance, and every circumstance which diminishes organic and psychological resistance, may produce dipsomania.*

Diagnosis.—Understood as we have described it, dipsomania can be compared only to itself, and it seems superfluous to state the diagnosis. But it is necessary, if only for the purpose of establishing once more an absolute line of demarcation between alcoholism and dipsomania.

(1) An alcoholic patient becomes insane because he drinks; a dipsomaniac is insane before he commences taking to drink. (Magnan.) Dipsomania may be

complicated by alcoholic symptoms, but alcoholism never leads to dipsomania.

(2) Alcoholism is an intoxication which has as its cause—alcohol; dipsomania has its cause in a defective mental condition, and alcohol is but a secondary factor, which may be replaced by any other poison, leaving to the syndrome all its psychological characters.

(3) Dipsomania proceeds in paroxysmal attacks, and the appetite for strong drink is absent during the intervals between the attacks. Alcoholism has no definite course; its development depends directly upon the more or less considerable or prolonged consumption of alcohol.

(4) A dipsomaniac satisfies a pathological and imperious want; he does not like alcohol, and takes it against his will. He strives energetically without the necessary power of resistance, and suffers greatly through the sense of impotence; an alcoholic individual has no actual want; he only obeys a vice, a proclivity, and an alteration of his moral sense; he does not strive although he has the power, and would suffer if he were prevented from taking drink.

(5) A dipsomaniac is conscious of his condition, he is ashamed of his degradation, and hides himself in order to drink. An alcoholic individual is sometimes unaware of, but more often indifferent to, his condition; he does not regret his excesses, but he even boasts of them.

(6) Lastly, dipsomania is a syndrome, always identical with itself, whilst alcoholism is an intoxication varying much in its clinical symptoms.

The prodromic period of an attack of dipsomania might be mistaken for the commencement of an attack of melancholia, but this period is very short, and the appearance of the impulse makes the diagnosis certain. The knowledge of a previous attack of dipsomania must put the observer on his guard.

Although the study of the differential diagnosis between dipsomania and a false condition of dipsomania would be here in its place, it will be better to proceed first with that of pseudo-dipsomania.

B. Pseudo-Dipsomania.—Between the true dipsomaniac, who drinks impulsively, and the common drunkard, there is a very numerous class of drinkers—actual intermittent drunkards—who *seem* to obey a sort of impulse, but are more like a common drunkard through their pronounced liking for intoxicating drink, and who are also like true dipsomaniacs in consequence of certain psychological characters; as a matter of fact, they are often confounded with dipsomaniacs.

These patients correspond to those whom Hutcheson has described under the heading, *chronic dipsomania*; or to those whom Skae comprises under the term, *dipsomania of recurrent form*. The epithet *oinomaniacs*, taken in its etymological sense, which Stoeber uses as a synonym of dipsomania, is well chosen, because there exists in them an enormous appetite for alcohol; to have intoxicating drink is the only *purpose* for which they live, whilst in a dipsomaniac it is only a *means* to calm a pathological impulse. We have proposed for these individuals the term *pseudo-dipsomaniacs*, an epithet which reminds us of certain characters, linking them together with the *true* dipsomaniacs but at the same time preventing all confusion. They present the following clinical aspect:

A pseudo-dipsomaniac is a true alcoholic patient or, better, a peculiar type of drunkard, who is conscious of his condition, which he deplores, and recognises his impotence to mend. In one word, he sins in consequence of a defective will (we know that in a true dipsomaniac the will strives energetically, and if he succumbs it is not in consequence of the inertia of his will). Pseudo-dipsomaniacs are individuals with defective mental equilibrium, who are constantly driven by their instincts or proclivities, and always oscillate between the desire to satisfy their craving, and the sincere desire to resist, because they are conscious of the dreadful consequences of their intemperance; they are patients with a weak will, without energy, and easily directed in any direction; actual weathercocks, they appear in presence of alcohol to be great children, incapable of any efficient and energetic action. Nevertheless, they strive, and this consideration explains why their excesses occur periodically in a *recurrent* manner (Skae); they resist until some tempting opportunity makes them forget all their good resolutions. Perfectly conscious of their weakness, and often intelligent, they drag along a miserable existence; they are affected with a sort of pathological anergy, which throws a shadow over all the actions of their life; they are the victims of occasions, which they do not want to avoid, because they love alcohol; they would never become drunkards if it were possible for them to live always under tutelage.

If a pseudo-dipsomaniac finds an opportunity for drinking, or if he feels the want of the drink he loves, we see him after a short struggle, plunge into brutish drunkenness and into shameful debauchery until he has no more money in his pocket.

Such is the fate of many a workman in the towns, and also of certain individuals belonging to the best society, as well as of unstable individuals, whom we see from time to time "firing off the whole broadside" (*tirer de vraies bordées*), during which alcoholic debauchery, though occupying the first place, is complicated with other debaucheries. We then witness actual attacks of moral insanity. The pseudo-dipsomaniac has striven, but without great energy, and with the secret hope of being defeated. Alcohol procures for him temporary enjoyment, which tempts him, and which he seeks most eagerly, although regretting that he has not the moral power necessary for good conduct.

After the excess is over we see the patients full of repentance, ashamed of themselves, crying bitterly in the arms of those upon whom they have brought dishonour, asking their forgiveness, and vowing never to do it again, or to make energetic efforts to control themselves; but at the first opportunity all their courage vanishes, they fall again, and so it often goes on during their whole existence. Such individuals are always liable to alcoholic symptoms and belong to the number of those who have, so to speak, a perpetual ticket of admission into the asylum, which they enter in many cases ten to fifteen times during their lives. It is not rare to see them hesitating when they leave, demanding fresh and longer sequestration because they do not yet feel themselves sufficiently strong. These alcoholic patients never complain of sequestration. In the long run, the alcoholic symptoms disorganise their intellects so far as to make a continuous stay in the asylum a necessity.

It is sufficient to observe one of these patients and to hear his confession, to find out the difference between a pseudo-dipsomaniac and a drunkard, as also a mere tippler. A drunkard is an individual with a defective moral sense, who satisfies all his shameful wants without having any conscience, without striving and without suffering from his condition. With regard to the tippler, he poisons himself slowly with small doses, without however offering the spectacle of brutish drunkenness. He poisons himself quite unawares; his moral sense is not necessarily obliterated, but he tries to excuse his tipping in a thousand ways.

The pseudo-dipsomaniac is therefore a typical variety of a patient suffering from alcoholism—a drinker with very defective mental equilibrium. The simple fact that he suffers from alcoholism, and that alcohol is his permanent desire, suffices to

separate him from the true dipsomaniac, for whom alcohol is but a secondary factor. In addition to this, nothing here resembles an obsession of impulse. However, these two patients show numerous points of similarity, especially this one: the pseudo-dipsomaniac belongs like the true dipsomaniac to the great family of the degenerated—in both there is want of mental equilibrium. If clinically they are not much alike, they are generically closely related. This is so true, that we possess clear observations of pseudo-dipsomaniacs having begotten true dipsomaniacs with paroxysmal impulsive attacks. This tends to show that in the degeneration of these two patients there is only a difference of degree.

Treatment.—The treatment of dipsomania may be clearly seen from our explanation. To deprive the patient of the stimulant by sequestration is the first indication. It has a double purpose: to cure the attack and to protect the patient against himself, by preventing him from committing those actions, of which he often makes himself guilty, in order to procure the desired drink. The second indication is to calm, by all possible means, the erethism of the cerebral cortex, which is the first cause of the attack, lukewarm baths, alkaline bromides—in one word, all sedatives are suitable. It is well, however, to avoid the use of narcotics (morphia, cocaine), which might awaken in the patient an appetite for a new sort of poison. Bitter drinks, given copiously, are a good adjuvant. Lastly, during convalescence, tonics will improve the general condition of the dipsomaniac. At this period moral treatment may often be useful; its purpose is to raise the courage of the patients, to comfort them by rehabilitating them in their own eyes, by showing that their excesses are disease and not a vice, by exhorting them to patience, and indicating to them the cerebral hygiene which they have to adopt. This moral treatment encourages the patients, and makes them have confidence in themselves.

As in every disease which comes on in periodical attacks, it is well to prevent a possible return of the paroxysm. Prophylaxis here does not differ from that of other cerebral diseases, and is founded on a vigorous intellectual hygiene, which, however, is not indicated in general rules; each special case has its special indications. All therapeutics, however, tending to maintain vital energy and a good average mental equilibrium, will favourably influence intellectual health. For this purpose hydro-therapeutics and the periodical use of alkaline bromides may be

prescribed in cases where an intercurrent cause might tend to exaggerate nervous excitability.

Pseudo-dipsomaniacs must be kept sequestered as long as possible. Unfortunately, however, if at liberty, he will entirely escape the influence of the physician in consequence of his loss of energy. Alcohol, as being the *first cause* of his disease, must be perfectly excluded from his hygiene. Here the influence of the surroundings may produce very good results, the pseudo-dipsomaniac must be constantly looked after, and be kept under a sort of masked *surveillance*; he must be treated with the greatest firmness. Like every weak individual, conscious of his weakness, he gladly follows good advice, and like all individuals with defective mental equilibrium, he is extremely malleable. In the asylum, complete abstinence from strong drink, tonics and good food will be the most efficient treatment. The alcoholic symptoms which he may present must be treated as symptoms caused by alcoholism.

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DIPSOMANIAC (*δίψα*; *μανία*). A sufferer from Dipsomania.

DIPSOISIS AVENS (*δίψα*, thirst; *aveo*, I crave). An excessive craving and morbid desire for alcoholic stimulant. (See DIPSOMANIA.)

DIRT-EATING. An abnormal appetite occurring in cachexia aquosa, hysteria, pregnancy, &c.

DISEASE, FUNCTIONAL (*functio*, a performing). A disease or disorder which depends upon an unnatural or irregular action of a part, unconnected with any apparent lesion of its structure.

DISLOCATION OF MEMORY.—Holland's term for the phenomena of complete but temporary forgetfulness.

DISTEMPERATURE (O.F. *distemperer*, to derange, from L. *dis*, and *tem-*

pero, I proportion out duly). A derangement or perturbation of the mind.

DISTRIBUTION OF INSANITY. (See STATISTICS.)

DISTURBANCE, MENTAL.—An inquietness or violent change in the settled conditions of the mind. Used to describe an interference with the natural mental functions.

DIVAGATION (*divagatus*, from *divagor*, I wander about). A going astray or rambling in speech or thought.

DIVORCE, INSANITY AS A GROUND FOR. (See MARRIAGE, NULLITY OF, ON THE GROUND OF INSANITY; MARRIAGE, LAW OF, IN RELATION TO INSANITY.)

DOMICIL (LAW OF) IN RELATION TO INSANITY.—A foreign decree or commission appointing a person curator or committee of a lunatic, *resident in a foreign country*, empowers the curator or committee to deal with the *personal* but not with the *real* property of the lunatic in England. If a foreign curator or committee, duly appointed under a foreign decree, applies to the Court for payment to him of money belonging to the lunatic, the Court may, in its discretion, grant or refuse the application. (*In re Houston*, 1 Russ. 312. *Scott v. Bentley*, 1 K. and J. 281–284. *In re Garnier*, 13 L. R. Eq. 532. *Grimwood v. Bartels*, 46 L. J. Ch. 788.) Provision is made for Scotland and Ireland by sec. 131 of the Lunacy Act of 1890. According to English law, a lunatic generally retains the domicile which he possessed at the time when he began to be legally treated as *non compos*. He cannot change his domicile. He cannot acquire a new one. Neither can his domicile be fixed or changed by his committee. The period of his compulsory confinement will be totally disregarded. Thus, in *Hepburn v. Skirving* (9 W. R. 764), A., a Scotchman by birth, went to India, served there for forty years, became insane from the effects of the climate, was sent to England, never recovered, and died there. It was held that his domicile was Anglo-Indian. (*Cp. Bempde v. Johnstone*, 3 Ves. Jun. 198.)

If a man at the time he attains his majority is of unsound mind, and remains in that state continuously up to the time of his death, the incapacity of minority never having been followed by adult capacity, will continue to confer upon the father the right of choice in the matter of domicile for his son, and a change of domicile by the father will usually produce a similar change of domicile as regards the lunatic son. (*Sharpe v. Crispin*, L. R. 1 P. & D. 611.)

A. WOOD RENTON.

DOMINANT IDEAS (*dominans*, from *dominor*, I rule; *idéa*, an abstract notion of anything). A term employed by Carpenter to indicate those mental processes which govern the movements of the body automatically or without the express co-operation of the will. A strong belief may induce actions even against the will of the individual, acting as a kind of undercurrent of nerve force, of which he is not conscious.

DOORS OF ASYLUMS, UNLOCKED. (See OPEN-DOOR SYSTEM.)

DORCADIZANS (*δορκαδίζω*, I bound like an antelope). Leaping, as in some forms of mania and epidemic insanity. Leaping insanity.

DOTAGE (from English verb *dote*; Mid. Eng. *dotren*, with suffix *age*). Feebleness of mind in an old person, or in one rendered prematurely old by disease or excess. (See OLD AGE.)

DOUBLE BRAIN.—On removing the membranes of the brain we find that the two hemispheres are quite separate, and only united below for a part of their extent by the corpus callosum. Though the two hemispheres closely resemble one another, on careful examination the arrangement of the gyri and sulci are generally found to differ in some points on each side, especially in the secondary folds of the temporo-sphenoidal and frontal lobes. These differences are not constant, nor have any arrangements been described peculiar to the right or to the left hemispheres. It is very rare to find the two hemispheres of equal weight, and contrary to what might have been expected from physiological deductions, it is the right hemisphere which is generally the heavier by a few grammes. Though there is free arterial communication at the base of the brain through the circle of Willis, the distribution of blood to each hemisphere is quite distinct, so that the one side of the cerebrum cannot be injected from the arteries of the other side.

It is agreed that the brain is the seat of the higher manifestation of mind, and some questions naturally arise: Have both hemispheres the same or similar functions? Are there two simultaneous mental processes going on within the two hemispheres? and, How is this to be reconciled with the unity of mental operations? The old metaphysicians held that, though consciousness was at its greatest intensity when the attention was turned upon one object, the mind could simultaneously pay attention to different objects. Some stated as the result of their self-observations that the mind could have a distinct notion of

six objects at once without absolute confusion. It is found by experience that the mind can at the same time attend better to separate mental processes when they are of different character. In riding, for example, many actions requiring separate mental operations are carried on at once, such as keeping the seat, observing the road, avoiding obstacles, and guiding the reins with the left hand, while different motions may be executed with the right hand, and at the same time some object of contemplation can be pursued.

In considering the manner in which Nature arranges for unity of vision with two eyes, we may gain a suggestive analogy which will help us to understand how she provides for corresponding action in the two sides of the brain. The fibres of the optic nerve meet at the chiasma; a part there crosses over to the optic ganglia of the opposite side, but another though smaller bundle of nerve fibres passes on to ganglia of the same side. The result is that the outer or temporal side of the right eye, and the inner or nasal side of the left eye, transmit impressions to the right side of the brain and *vice versa*. Injury to one side of the occipital portion of the brain thus causes the phenomenon of hemiopia, the vision of part of the retina of each eye being injured. Thus, complete blindness could only be produced in both eyes by the common destruction of both the visual spheres of the brain.

It may be proved by a simple optical experiment that behind and in front of the focal point of vision we really see double images, but the mind takes no note of them. When the attention is fixed upon a certain object, both eyes, by the spontaneous actions of the oculomotor muscles, converge to one focus, so that the image of the object falls upon corresponding points in each eye. As long as the mechanism of the motions of the eye is correct we see the object looked at as single; but if one eye be put in a different position from the other, as in squinting, so that the images fall upon different points of the retina, a single object is seen as double. It is not, however, to be supposed that the image of a projected solid body which falls upon the left retina is exactly like that which falls on the same spot in the right retina. Our idea of a solid body is really derived from two varying aspects being fused by the mind into one image which is a compound of both. This is well illustrated by looking at views through a stereoscope.

The sensory fibres of the spinal cord are supposed mainly to pass over to the

opposite side, transmitting sensory impressions from one-half of the body to the opposite side of the brain, but not entirely so, as probably a smaller portion of these sensory fibres go to the hemisphere of the same side. In a similar way the motor fibres from the right hemisphere cross over to the left side of the cord to supply the muscles of the left side of the body and *vice versa*. It is, however, generally acknowledged that this crossing of the motor fibres is not complete. Certain fibres never cross, but are distributed to the muscles of the same side. Brown-Séquard holds that both sides of the body are represented on each side of the cerebrum, so that in reality we have two full brains, as each hemisphere is endowed with all the powers we believe to exist in the two cerebral halves. One side of the brain is thus enough for all the numerous functions intellectual, sensory and motor. But this distinguished physiologist states his thesis with too little reserve, and goes far in advance of scientific proof.

It is generally held, that though both sides of the body are represented on each side of the brain, the representation is unequal. Most of the fibres, both sensory and motor, pass over to the opposite side of the body, but some go to the same side. In the ordinary symmetrical motions, both sides of the brain have a proportional representation for each half of the body. Some motor spheres seem to send their nervous influence mainly to the muscles of the same side. Others are connected in almost equal proportions with the muscles of the same and opposite sides; while other brain centres are mainly connected with the muscles of the opposite side alone. The muscles of the neck and trunk seem to get their principal supply of innervation from the same side of the brain (Unverricht), while those of the jaw, throat, larynx, and diaphragm take their nervous influences almost equally from both sides of the brain; and the muscles of the arm and leg are supplied with motor impulses, mainly from the hemispheres of the opposite brain, for it is especially in those muscles through which are performed motions requiring special skill and design, that the motor impulse is crossed. Hence these motor capacities are more liable to be lost by injuries confined to one side of the brain. In the lower animals, in which specialised motions are rare, each side of the body is more fully represented by both sides of the brain. Goltz has shown by removal of one-half of the brain in the dog that the ordinary actions and habits of the animal were little affected; but when por-

tions of both hemispheres were removed, the intelligence of the animal was much diminished. Thus in the lower animals it may be assumed that both halves of the brain have functions closely corresponding; but in man the specialisation of function in one hemisphere has clearly begun.

Pathological observations have proved the localisation of the motor arrangements for the utterance of words in the posterior third of the third frontal gyrus, and the sensory realisation of heard words in the first and second temporo-sphenoidal gyri of the left brain. Destruction of these parts on the left hemisphere is known to cause motor and sensory aphasia, though the ordinary motions of the tongue and lips, excepting in speech, are unaffected. It is assumed that in the conceptions and utterances of speech-sounds, the left side of the brain takes the lead, the same parts of the right side following with a corresponding but less intense action. As Dr. Hughlings Jackson puts it, the right half of the brain is the automatic half, and the left is the half in which automatic action passes into what we call voluntary action. When the aphasic patient utters a few words or exclamations, Dr. Jackson thinks this is owing to the action of the right uninjured side of the brain. It has been observed that when the patient has been left-handed, the destruction of the corresponding gyri on the right side of the brain causes aphasia sometimes with left-handed paralysis; but this is not always so.

There are cases where the lesion on the left side has failed to cause aphasia in individuals who were normally right-handed. In these cases we may conclude that the functional power of the right side of the brain was sufficiently great to allow the exercise of speech to be continued. The same explanation may be given for the cases in which the function of speech, after being suspended from lesion on the left side, was gradually resumed, that is, the function was taken up by the corresponding parts of the right side of the brain. Luys has described a patient who became aphasic in consequence of the destruction of the left third frontal gyrus. After a time she began to speak correctly, and on her death it was found that the right frontal lobe was much more amply developed than is usual. It does not seem that we can admit that the third frontal and temporo-sphenoidal convolutions of the right brain in ordinary circumstances rest functionless, as has been supposed. In that case one would expect to see symptoms of degeneration of tissue following disuse, which has never been observed.

By the ingenious device of a crown supporting a circle of sensitive thermometers around the head, Broca was able to show that on the strenuous mental exertion involved in difficult reading, there was a rise of the temperature of the head, and that this increase was at first most marked on the left side, but afterwards became equalised. Hence he concluded that, at least in reading, the left side of the brain was the most active. Fasola has recently ascertained that the action of speaking causes a temporary rise of heat in the antero-lateral region of the head. This was sometimes on one side, and sometimes on the other.

It has been observed that continued motions of one hand cause a rise in the temperature of the head on the opposite side. Dr. N. A. Randolph found by a series of experiments that exhaustion of the brain-centre of the right fore-finger also impaired to a lesser extent the power of the centre of the left fore-finger, so that the latter finger became more readily fatigued. (Hare on Epilepsy, 1890, p. 137).

There are a few cases on record in which the right hand having become paralysed, the patient, essaying to write with his left hand, traced the letters reversed from right to left, forming what has been called mirror-writing, because it can be easiest read in a mirror. It has been also observed that left-handed children forced to write by their teachers with the right hand, on surreptitiously making use of their left sometimes betray themselves by producing mirror-writing. It has been found by experiments that when a number of children were told to write with their left hands, those who were naturally left-handed were apt to trace the letters in the reverse manner, and even to do so without noting the effect. The explanation given of this tendency is that, in the case of paralysis of the right arm, the image, or impression, or change in the brain tissue from which the letters are produced by the hand was destroyed, and that in trying to write with the left hand the patient wrote from an image on the right side of the brain in every way corresponding, save that it was reversed. Thus, D on the left side would have α on the right, written from left to right with the right hand, or from right to left with the left hand. Thus, the motions in each case would be centrifugal and corresponding; in the one case the characters would be formed from an image on the left side; in the other from the right side of the brain. The same explanation will also serve for the left-handed children executing mirror-writing. They unconsciously

drew from an image on the right side of the brain. Those who practise mirror-writing for amusement generally find that it comes easier with the left hand.

The old phrenologists who mapped out the outer surface of the brain into two corresponding regions, on which they located the different mental or moral faculties, laid much stress upon the corpus callosum as keeping up the connection between the two hemispheres. It is now generally admitted amongst neurologists that the corpus callosum is a real commissure. Through its transverse radiating fibres it connects analogous parts, and through the longitudinal fibres of the *tapetum** it connects heterologous parts; that is, the occipital with the frontal sides of the hemisphere. It is perplexing that there are at least half a dozen instances on record where the corpus callosum has been found entirely wanting, without any of these mental deficiencies which might have been supposed to be entailed by its absence. This has been confirmed by observed cases in which the corpus callosum has been destroyed by disease. Whatever, therefore, may be the function of this organ, it is clear that neither the unity of the mental operations nor of the sensory or motor functions, is much affected by its absence.

The other commissures, the anterior, middle, and posterior, connect the lower cerebral ganglia of each side together. It is only through these ganglia that the commissural fibres can pass into the hemispheres, and in any case these bands seem from their inferior size scarcely adequate to supply the want of the corpus callosum. Dr. Sherrington found that destructive lesions of the motor zone of the cortex were followed by bilateral lesions of the pyramidal tracts in the lateral columns of the spinal cord. When the cortical destruction occupied the limb centres alone, the bilateral character of the descending degeneration was not so marked. The degeneration is not bilateral at the base of the brain. At the pons Varolii, where all parts of the encephalon unite, the degeneration is still on the same side as the lesion.

It is a well-ascertained fact that one side of the brain is sufficient for all the usual functions of the mind and body in daily life. A considerable number of instances have been published where the destruction of one hemisphere had become more or less complete without any

* See the paper of Dr. Onufrowicz, *Archiv für Psychiatrie*, xviii. Band, 2 Heft, and that of Dr. Kaufmann, *Archiv*, xviii. Band, 3 Heft, and xix. Band, 1 Heft (*Journ. of Men. Science*, Jan. 1889, p. 604).

apparent loss of mental, sensory, or motor capacity. In some cases this destruction was on the right side, and in others on the left. In some cases the destruction of the hemisphere was not recognised till examination was made of the brain after death, just as people have become blind of one eye or deaf of one ear without noticing it till some time after the loss had become complete. From this we may conclude that both sides of the brain are functionally active, and as far as we know, save in the instances already given, both sides have the same work to do. Of the same nervous structure, supplied by the same blood, and draining through the same sinuses, the organic changes on either side are identical. We may hold from analogy that, as long as corresponding or complementary or congruous impressions are produced in each hemisphere, no disparity of thought or affection will be noticed, just as the same or complementary impressions from both retinae are fused into one mental image. Double action of the brain is only displayed in health by the capacity of attending to several mental processes at once. It is in diseased action where one side of the brain is affected and not the other, that we may expect to find a derangement of the harmonious action of both hemispheres. Such signs have been little noticed mainly because they have not been looked for by those who have the best opportunities of observing them. In cases of wounds or injuries of one side of the brain, the following symptoms have been observed. The patient is quite sensible, though perhaps exhibiting signs of distress or restlessness, or twitching of the muscles. When spoken to he will answer for a time composedly; but conversation soon fatigues him, he begins to be anxious, then distressed, and further conversation becomes painful and exhausting. Nevertheless to outward appearance he is composed and reasonable. The explanation of this is, that one side of the brain being still healthy, it acts in a normal manner, but in the exertion to carry on a conversation the diseased hemisphere has to perform parallel actions. The result is the feelings of distress which oblige him to shun or arrest any unusual mental exertion. In such cases it sometimes happens that lying on the diseased side causes a painful feeling, and when the patient during sleep turns upon the affected side he awakes in a fearful dream. Inflammatory processes, implicating the surface of the hemispheres, are liable to spread by means of the membranes which are united at the middle

line. We may also suppose that irritation of particular parts of the brain has an effect upon the opposite side, in the same way as inflammations of one eye have an irritating effect upon the sight of the other eye.

Undeniable proof of the existence of unequal disease of the brain is furnished by the often found disparity between the weights of the hemispheres in the insane. Though we do not agree with Luys that it is the left half of the brain which in most instances weighs heaviest, we cannot reject the facts which he presents that the inequalities in weight are much greater in the brains of insane patients, rising from the five or six grammes found in healthy conditions to from eighteen up to forty grammes. It is in epileptic insanity and general paralysis that we find the inequality of the weights of the hemispheres most decided.

The assumption of one-sided or unequal disease of the hemispheres furnishes an explanation of many symptoms in insanity. There is what the French call *la folie lucide*, in which, though struggling with delusions and hallucinations, which it is well known are sometimes only one-sided, the patient still retains a considerable measure of intellectual clearness and self-control. There are cases of melancholia where the patient deeply dislikes being disturbed and seems entirely overwhelmed with his own miseries, but it is found afterwards that he has noted and understood everything round about him. There are also cases in which the patient has struggled with some dominant idea with more or less success. We may reasonably suppose that, as long as the unhealthy action is limited, the morbid sensitiveness, the perverse impulses, and the delusive images of the one side of the brain may be held under control by the normal action of the other hemisphere, but, through the extension of the diseased action, and still more by the implication of both sides of the brain, the balance is at last overset.

Many of the grotesque statements made by lunatics are rude explanations of a change of feeling, or a confusion of thought following on the unequal action of the hemispheres in diseased conditions. Such are the assertions that the patient has become a new person, that spirits or some other beings introduced new thoughts into his mind and incited him to perform motions which he never willed and of which he disapproved. Then there are cases of conflicting volition where the person is at a loss whether to commence a motion on one or other side, or in which

he alternately uses the one or the other hand. We have seen a lunatic who said that she heard with one ear abusive or threatening language while comforting words were instilled into the other. Several cases have been published where the patient felt the intrusive force of a second personality. Professor Ball of Paris showed to his clinique a man of thirty-six subject to hallucinations of sight and hearing who believed that the left side of his brain was occupied by some one whom he called M. Gabbage. He sometimes said that M. Gabbage forced him to do things which he had much reason to regret. M. Gabbage incited him to throw himself out of the window, and on another occasion to throw his watch and chain into the fire. It is desirable that we should know more of the pathological anatomy of cases like these, but some beginnings in this direction have been already made.

There are cases where the individual seems to obey or receive a delusion and at the same time to disbelieve it, as in those dreams where a person retaining the belief in his own identity witnesses his own death and burial. In what has been called double thinking (*Doppeldenken*) the subject hears his thoughts repeated into his ear by some strange voices immediately after their conception. This has been explained by some writers as owing to retardation of one hemisphere. Some have also tried to explain the occurrence of what has been called double consciousness, or rather double memory, in somnambulism or induced hypnotism, by the supposition that consciousness becomes alternatively active on either side of the brain. This explanation is a possible one, but it seems more consonant with the facts to suppose that in the conditions of somnambulism certain portions of both sides of the brain are thrown into intense action while the activity of other portions on both sides is suspended.

As an outcome of our whole inquiry we may ask, In what consists the feeling of oneness possessed by the mind? Is there an Ichheits organ? And if so, where is it? How are two parallel sets of impressions or apprehensions, or two different zones in which volition commences to move each side of the organism: how are these ruled into the unity of a single personality? To this question the materialist will find great difficulty in making an answer.

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DOUBLE CONSCIOUSNESS. (Fr. *Dédoublément de la personnalité.*) — **Definition.** — "Consciousness—personality—self—these," says Littré, "constitute the individuality of one person as distinct from that of another." Although these words have different meanings, they convey the same idea. Each one of us, then, has his personality, his consciousness, which make up the total of moral and physical facts that characterise us. But there are morbid states that alter this consciousness, and give to the person so affected *the appearance of being double.*

Symptoms.—We shall describe only the best characterised of these states, for there are others in which the self is more or less divided. We shall recall some of those that are familiar rather than those that have been scientifically analysed.

The most common of them is that of dreaming. It is of frequent occurrence. In dreaming, the mind, deprived of the co-ordination of ideas, and the action of the senses, represents a personality different from the same in a waking state; a personality, which is often considerable, though incomplete; we have all of us two existences, the waking state and that of dreaming; the drunkard, too, has two lives, his ordinary state and the state of drunkenness, during which latter he may act with an appearance of reason. It is the same with one who is insane; who, moreover, often imagines himself to be another person. Lastly, there is somnambulism, whether it be spontaneous or induced. In this state, which is nothing else than a dream, in which the co-ordination of ideas and the activity of the senses are more or less perfect, the *dédoublément* of the personality—dual consciousness—may, as we shall see later on, be complete.

There are, then, between the states of perfect health and that of dual consciousness intermediate states, that justify the adage, *Natura non facit saltus.*

For the demonstration of the hypothesis which we adopt, namely, that dual consciousness is only a complete somnambulism (*somnambulisme total*), we shall cite facts, having for their theme extraordinary somnambulists and cases of dual consciousness, the most typical that we are acquainted with. It will be seen that the second are only the exaggeration of the first. We take our facts of somnambulism from MM. Dufay de Blois, Mesnet, and Tissié de Bordeaux, who calls the

condition he describes, *ambulatory automatism*; and those of dual consciousness from MM. Camuset, Bonamaison, Macnish, and from our own observation.

Case 1.—Mlle. R. L. has had attacks of ordinary spontaneous somnambulism from childhood. We owe the facts to M. Dufay de Blois. About 1845 she was 24 years of age, and directed at Blois a sewing establishment. Every evening towards 8 o'clock she completely loses consciousness for the space of a few seconds. After this time, she straightens herself, crossly pulls off her spectacles (she is extremely shortsighted). She is no longer shortsighted; continues the piece of work she has begun, talks while working with her companions, gets up, walks about the workroom, and attends to her concerns. In short, any one who had not witnessed the beginning of the attack, could not notice anything, did not Mlle. R. L. change her mode of speaking—thus, she speaks of herself in the third person, as children and negroes do.

In this second personality her mind is more active than in her normal state. Her memory especially is of extraordinary acuteness, as also are her senses—the attack of somnambulism lasts from two to three hours;—often our patient goes to sleep naturally, and next day awakens in her usual state. The passage from somnambulism to the normal life is marked by two or three yawns. There is no loss of consciousness as there is at the beginning of the attack.

We will add that Mlle. R. L. ignores absolutely in her normal all that happens in her other life, while in this latter she is conscious of the *whole* of her existence.

Mlle. R. L. is thus a somnambulist who has a very characteristic dual consciousness—a complete somnambulist (*somnambule totale*.)

Case 2.—This case is given on the authority of M. Mesnet. F., wounded in the battle of Bazeilles in 1870 by a shot in the head, has had (1874) for four years two distinct phases in his life—the one normal, the other pathological. His health is excellent, and in his usual state he gains his living as singer in café concerts; he is intelligent. Suddenly, his senses close themselves to external excitants, and after a few moments he comes out of this transitory state, coming and going, acting as if his senses were in full operation, to such a point that any one not informed of his condition would meet him on his passage without suspecting anything. During these crises, his instinctive functions and his appetites continue as in his normal state—he eats,

drinks, smokes, dresses and undresses himself, and goes to bed at the usual times. He is completely anæsthetic, and has neither the sense of taste nor that of smell, his sight is imperfect, but the sense of touch is highly developed.

These crises vary in duration, are separated by intervals of 15 normal to 20 days of health without fixed periodicity. I will add that all the acts that F. performs during his attacks are only repetitions of his habits during his waking state, with the exception of one idea that he has only in his second state, the tendency to theft.

Lastly, the whole period of his attack is a phase of his existence, of which on awakening he has no consciousness; his oblivion is absolutely complete; the separation between the two phases of his life is absolute.

There is no doubt that F. is a somnambulist—a complete somnambulist.

Case 3.—We have the authority of M. Tissié for the following:—Albert D., aged 30, is neuropathic by heredity. His father died of softening of the brain, he has lost a brother through meningitis at 39 years of age, and another of his brothers is hypochondriacal at the age of 8, in consequence of a fall. Albert began to suffer from violent migraine accompanied by sickness; the characteristic of his morbid state is the impulse to walk. He walks at random, is able to direct himself, accomplishing as much as 70 kilometres a day, and sometimes more.

This is what happens: A. dreams in the night that he is to go to a certain town, and in the morning, having wakened, or appearing to be awake, he continues his dream and departs, abandoning his family and his concerns. He generally sees in his dream some one whom he knows, who invites him to follow him to a town where he will find work, for he is hard-working, and it is his constant anxiety to ameliorate his situation and that of his wife, whom his repeated escapades have reduced to misery. After having, in his second state, searched the places where his wife hides her little savings, he departs, but he does not know what resources he has upon him, and will allow himself to be robbed, taking a bank-note for a piece of paper, and regaling recklessly the people he meets on the way. As he has been arrested a number of times as a vagabond, A. is acquainted with all the prisons of Europe and many hospitals. This singular somnambulism began at the age of 12. Since that time A. has visited France, Algiers, Germany, Holland, Belgium, Turkey, Hungary, Switzerland, and Russia, where he was in

danger of being hanged as a Nihilist, almost always on foot in a state of dream, or rather of dual consciousness, or in complete somnambulism.

His memory is very good, and during his induced sleep (*sommeil provoqué*) he remembers all his life, that of the somnambulist period and that of his waking state; while in his waking state, he never remembers what he has done in his other personality, when that is complete. Sometimes only he remembers the active dreams of the beginning of his second condition.

The ambulatory dreams of A. are of two kinds. The first manifest themselves in his bed; he sees a town, and moves his legs as if he were walking. The second are those in which his second personality is complete, where he departs in reality for some place. The existence of these two kinds of dreams might make one doubt the veracity of our patient, did not the numerous doctors' certificates, gaol-tickets, and waybills verify the allegations of this modern "wandering Jew."

To sum up, A. represents two states, two personalities, one in which he is awake like every one else, and the other in which he is on his wanderings. This latter has two forms. The first is a dream only, without further action than the motion of his legs simulating the act of walking; the other is a complete somnambulism, a state of dual consciousness, in which he performs the extraordinary journeys we have related, which he does not remember afterwards, but which he relates willingly in the condition of induced sleep (*sommeil provoqué*). This state lasts from fifteen to twenty days and often longer.

A. is more intelligent, more volatile, in his second condition and in induced sleep than he is in his ordinary state; he is, in fact, an hysterical diurnal somnambulist (*un hystérique somnambule diurne*).

We think that in regard to this patient there can be no doubt his new personality is indeed a complete somnambulism.

This account is only a brief abstract of the very curious and interesting description which M. Tissié has just published in his book on "Dreams, their Physiology, their Pathology," and especially in his thesis, "The Wandering Insane" (*les aliénés voyageurs*), which enters into more details.

Case 1.—This observation, published in 1882 by M. Camuset, was taken up again by M. Jules Voisin in 1885, and later by other observers who have studied a patient whose case still continues to astonish the scientific world.

In 1880, V., aged 17, enters the asylum

of Bonneval. He is hysterical by heredity. One day while working in the fields he is seized by sudden fright at the sight of a viper, and has a violent attack of hysteria. On his return to consciousness he is quite a different person. His character changes completely; from being quarrelsome and a thief he has become a gentle, honest, and obliging individual. He is in the second state. Moreover, he has completely lost all remembrance of the past, and fancies he is still at St. Urbain, a penitentiary settlement, from where he had been sent to Bonneval. He recognises nothing that he sees around him; not only has he forgotten all that he has seen and all that has happened, but he can no longer exercise the trade of tailoring that he knew before his attack.

This state (*condition seconde*) lasts a year, at the end of which, after a violent attack of hysteria, he becomes again what he was formerly—vicious, a thief, arrogant, and quarrelsome. He ends at last by escaping from the asylum. When he is brought back, he presents similar phases.

He has been studied for a long time at Bicêtre by M. Jules Voisin. At last he escaped during a period of his normal condition. Later we find him at Rochefort as foot soldier in the Marines, and he has served for a subject to M. Bouru and M. Burot for interesting experiments. He must be now in this country. We are convinced that if this patient, who is considered, and rightly so, to be suffering from hystero-epilepsy, had been or were to be studied from the point of view of somnambulism, one would find that in his childhood, troubled by misery and vagrancy, he was a somnambulist, and that his second states are only an exaggeration of his attacks.

Case 5.—M. Bonamaison, of St. Dizier, is responsible for this case. This physician has just published, in the *de l'Hypnotisme* for February 1890, the following observation: Mlle. X., patient in the asylum of St. Dizier, is 22 years of age. She is tall, dark, intelligent. She is manifestly suffering from *la grande hystérie*. Every morning she has an attack of sleep, which lasts from four to five hours, every evening from six to seven hours; and almost from the first her look becomes fixed, she stops in the conversation or the work she is engaged upon, and remains motionless in the position she is in. This state lasts from a few seconds to about two minutes. (Here we quote *verbatim* from the observation.) "Then a prolonged breath indicates that the patient is entering on the somnambulist state.

She looks round her with astonishment, saying to the persons present, 'Good morning,' or perhaps in addition, 'Ah! you are here.' Then she seems to recollect herself, and takes up the interrupted conversation or work at the point where she had left it. Sometimes the cataleptoid phase is so short that it passes unobserved. In this case the persons who are round her, ignorant of this strange anomaly, cannot notice anything. But for an informed observer, the character and the manner of Mlle. X. have undergone an appreciable modification; her eyes are more brilliant, her manner more unconstrained—she talks and laughs with more animation; from being in her normal state very docile—she becomes in this second condition self-willed and capricious. She occupies herself in this state by preference with very fine pieces of sewing or embroidery, which she executes with feverish activity and rare skill. During the attack of sonnambulism the patient has kept the remembrance of all that has happened during her normal state and the preceding attacks of sonnambulism; on her return to her normal state, she has entirely forgotten all that has happened and all that she said during the attack of sonnambulism—but it often happens that on the following day, on again entering the sonnambulistic condition—she tries to renew the conversation or to continue what she was reading during the second state and which she had forgotten in her normal condition.

"Spontaneous sonnambulism, combined with *dédoublement* of the personality, is one of the rarest manifestations of *la grande hystérie* and medical literature contains only a few examples of it—we may say that in consequence of the periodical return of the second condition, our patient lives two distinct lives, and that her personality is divided into two different individualities. We might add even that the second state is in fact the more agreeable of the two lives, and the more complete, because in it she has preserved the remembrance of her entire existence, while in her normal state all the periods of her second state are completely effaced from her memory."

In this observation, of which we have given extracts only, the identity of dual consciousness with sonnambulism could not admit of a doubt.

Case 6.—Macnish relates the following: A young lady, well educated, well brought up, of good constitution, suddenly fell into a profound sleep, which continued beyond the usual time. On awakening she had forgotten all she knew, and had

preserved not an idea whether of words or of things.

She had to be taught everything afresh; thus she had to learn anew reading, writing, counting; little by little she became familiar with the persons and things around her, that were to her as if she saw them for the first time. She made rapid progress. After a considerable time, some months, she was, without apparent cause, seized by a sleep similar to that which had preceded her new life. On awakening she found herself exactly in the condition in which she was before her first sleep; but she had no recollection of all that had happened during the interval; in a word, in her old state she ignored her new state. Thus she alternately called to remembrance her two lives, which were carried on separately.

For more than four years this young lady has presented—periodically almost—these phenomena; in one state or the other she has no more remembrance of her character than two distinct persons have of their respective natures. For example, during the period of her old state she possesses all the knowledge she has acquired in her childhood and youth; in her new state she knows only what she has learnt since the first ended. If somebody is presented to her in one of these states of hers, she is obliged to acquaint herself with him in both states in order to have a complete notion of him. And thus it is with everything. In her old state she has a beautiful handwriting; the same she has always had; in her new state her handwriting is bad, clumsy like that of a child; it is because she has neither the time nor means to perfect it.

As we have said above, this succession of phenomena has gone on for more than four years, and Mme. X. has managed to arrange the matter without its creating too much awkwardness in her relations with those around her.

This case of dual consciousness is to our knowledge the first that has been published. It dates from 1816. From that time to 1858 (the time when we studied Félicité) there must have been others met with, but they have passed unnoticed.

Case 7.—As this case, observed by ourselves, is well known, we publish here only an abstract of it, and will add the report of her present condition. Thirty-two years have passed since this patient was under our observation. In 1858 we were called to attend a young girl, Félicité X., whom her relations thought insane. She was then fifteen years old; and was hysterical with convulsions. She was industrious, intelligent, and of a serious, almost sad cha-

acter. This is the principal phenomenon of her illness, which has alarmed her family and those about her. Almost every day, without any apparent cause or any excitement of her feelings, she enters on her second condition in this wise. She is sitting down, a piece of sewing in her hand; suddenly, after pain in the temples, she falls into a profound sleep, from which nothing can rouse her, and which lasts from two to three minutes. Then she awakes, but she is different to what she was before; she is merry, laughing, hums a tune as she goes on with the work she is engaged upon, makes jokes with those about her, her intelligence is more active, and she does not suffer from the neuralgic pains she has in her ordinary state. In this state, which we call the second condition, Félicité has a complete knowledge of the whole of her life, remembering not only her ordinary existence, but the states similar to that she is in.

In 1858 this second condition lasted from one to three hours each day, often less; after that time there was a fresh loss of consciousness and waking in her ordinary state. Then Félicité is sombre, morose, and, what saddens her the most, is the absolute ignorance of all that has happened during the preceding period. Whatever may have been the time of its duration, the remembrance of it is absolutely effaced. In the years that followed 1858 the periods of the second condition have increased and equalled in duration the periods of the normal condition. At that time the existence of Félicité was divided into two equal parts, then the second conditions having exceeded in duration the periods of normal life, it was found that for a number of years the normal periods lasted only two or three days against three to four months of second conditions. The life of this young woman was intolerable, for she had no recollection of the greater part of her life. We abstain from reflections which this singular condition suggests; every reader will be able to make them for himself.

Now, in 1891, Félicité is forty-seven years old. Her general health is bad, for she has an ovarian tumour. Her intellectual condition at present is as follows:—For the last nine or ten years the periods of the second condition have diminished in time of duration to lasting a few hours only, and appearing only every twenty-five to thirty days. So that Félicité is almost cured, and will be perfectly so at the epoch of the menopause.

Commentary.—From the preceding facts it follows that there exist persons who have what appears to be two exist-

ences, alternating and absolutely separated by the absence of remembrance.

We believe the explanation of this singular fact will be found in the analysis of sleep. We announced this explanation at the beginning.

One of the most curious phenomena of sleep is somnambulism, the chief mark of which is oblivion on waking.

In those who are so affected, the intellectual and physical activity, which are deadened in complete sleep, act to a certain degree. Now, the number of somnambulists is considerable—especially among children—and from the simple case in which the somnambulist accomplishes a limited act, to the extraordinary somnambulist who seems to have an existence which is independent of that of his waking state, there are a large number of stages. Let us see if the exaggeration of this extraordinary somnambulism does not lead us to the state which, in its most striking character, deserves the name of *double consciousness*.

We admit that at first sight the assimilation of double or dual consciousness with somnambulism may seem strange, especially with respect to some of the facts cited above; it is, however, accepted by actual observers, and after having declared it in 1875, we return to it, thinking it correct, though we had relinquished it for a moment.

Entering on the main point of the question, let us investigate what are the gradations that lead from ordinary sleep to the second condition, and we shall see how our patients are nothing else than somnambulists, all whose senses and faculties are active.

Our sleeper is a child of eight or ten years of age, and sleeps soundly, as one does at his age. One speaks to him gently in a monotonous tone of voice; he does not awake, but answers; one can direct his thoughts at will, and often make him say what in his waking state he would not have revealed. He has no will of his own; he turns in his bed, drinks, &c. Every mother knows this.

The ductile or impressible activity of the sleeper may go further still. The story of the naval officer is known, whose comrades amused themselves by suggesting dreams to him; and who, sleeping on a bench, precipitated himself on his head, fancying that he was diving and saving his friend, who they told him was drowning.

It is the same with induced somnambulism, where suggestion may induce extraordinary results.

Thus, in somnambulism, whether in-

duced or not, whencesoever comes the suggestion, whether transmitted through the ear or through the muscular sense, the faculties of the mind wavering, indeterminate, without will and without co-ordination, submit willingly to an outside influence unknown to the sleeper, who, after having acted or spoken, awakes without having the slightest recollection of his acts or words.

But our sleeper's activity may be greater; his senses awake in part; he walks while sleeping; he is a somnambulist in the ordinary sense of the word. Let us examine this somnambulist. Each faculty of his mind that awakens, separately or in part, gives him one degree of perfection more. Further still, this faculty may be separately brought to an exalted activity, and in its function greatly exceed its normal power. Then the sleeper becomes a phenomenon—a marvel—he hears through his heel, sees through the pit of his stomach, predicts the future, gives infallible opinions, is in relation with God or the saints, and knows what is happening 1000 leagues away. He is, in short, what in some circles is called *an excellent subject, or a miracle*.

But generally, the principal sense, that of *sight*, is absent or incomplete; moreover, the ideas of the somnambulist, having lost their equilibrium and proper arrangement (co-ordination), may be directed at random, the senses not acting, or acting imperfectly, and the patient thus being able to have only a false or incomplete idea of the outside world.

What is wanting to make this somnambulist perfect? It were necessary that the function of the faculties and of the senses were perfect, especially that of the chief of them—the sense of sight. This last, in fact, gives the just notion of the external world, and consequently rectifies the ideas and aids to a right arrangement of them.

Now, this somnambulist thus perfect, strongly resembles an ordinary person. He resembles him to every one, except to those about him; for the initiated only he is in the second condition—in a state of *double consciousness*. His personality is divided into two. The proof of it is, that when the attack is over, he has forgotten, like a somnambulist, all that has happened during his attack. This is precisely what happens in the cases of dual consciousness, of which we have cited observations.

By the foregoing analysis we think that we have proved that the successive awakening of the faculties and of the senses constitutes a gradation from

ordinary sleep to the somnambulism which we call complete, and which gives to the person studied the appearance of leading a dual life. We may, then—to return to our position—meet persons who have the appearance of being like every one else and who yet, being in the second condition, are only somnambulists, who on awakening will have forgotten everything.

We do not hide from ourselves the disturbing questions which this possibility justly raises, especially from the point of view of responsibility. But it is not the business of science to inquire into the consequences of what it affirms. Its duty is at the same time a grander and a more narrow one. It is to establish the *truth*, basing itself on certain well-established facts. Let us carry ourselves back to the times when they burnt hysterical women as witches because, being anæsthetic under the lash, they were, it was said, in league with the devil.

To-day we shrug our shoulders; will our descendants not shrug theirs in their turn at a period when, considering the inevitable law of progress, our successors will be able to give explanations which we cannot do at the present day, and when that which astonishes us now will astonish nobody?

Let us content ourselves with registering the facts, after having carefully observed them; others will draw conclusions from them better than we can.

Then perhaps magistrates and physicians will keep pace with the progress of science, they will be better acquainted with the singular states that may render criminals irresponsible, and they will foil the trickery of those who, knowing that these states exist, will simulate them to procure a verdict of not guilty, as also the exaggerations of the lawyers who will make the most of them for their purpose. Then perhaps there will be compiled for all physicians a forensic medicine in keeping with the progress of physiology and psychology. At present this does not exist.

E. AZAM (de Bordeaux).
DOUBT, INSANITY OF. — *Maladie du doute* (Falret, J. P.)

Syn. — Monomanie raisonnante (Esquirol), Monomanie avec conscience (Baillarger), Aliénation partielle, avec prédominance de la crainte du contact des objets extérieurs (Falret, Jules), Folie du doute, avec délire du toucher (Legrand du Saulle), Grübelsucht (Oscar Berger).

Définition. — A chronic disorder of the mind, characterised by a state of intellectual unrest, and revealed by either or both of the following predominant symptoms:

mental self cross-examination—the outcome of doubt—and dread of contact with external objects.

General Remarks.—Although this curious form of mental aberration did not find a definite place in nosology until J. P. Falret, adopting the title conferred upon it by one of his patients, introduced it, as *la maladie du doute*, to the notice of the profession, we find scattered here and there amongst the writings of older authors, several examples of the disease, classed however as varieties of hypochondriasis, hysteria, or monomania. The first in chronological order of these examples is found recorded by Esquirol (*Traité des Maladies mentales*, 1838, t. i. p. 361). Under the heading “*Monomanie raisonnée*,” Esquirol gives a graphic description of the various phases of the disease. Succeeding authors—prominent amongst whom was Parchappe (*Symptomatologie de la Folie*, in *Annales Med. Psych.*, 1850-51)—seem to have concentrated their attention on the second of the prominent symptoms given in the definition, viz., dread of contact with external objects—a symptom which is not usually present until a later stage of the disease has been reached. A further step in the study of the affection was made by Trélat (père), Baillarger, Delasiauve, Brierre de Boismont, Jules Falret and Morel. Legrand du Saulle published in 1875 a monograph in which he summed up all that was then known of the disease, adding reports of several cases observed by himself. M. Ritti has written an interesting *mémoire* on the subject in the *Gazette Hebdomadaire*, No. 42, 1877, and contributed an elaborate article in the “*Dictionnaire Encyclopédique des Sciences Médicales*.”

In Germany, Griesinger introduced three cases to the notice of the Berlin Medico-Psychological Society, on March 13, 1868, his paper being subsequently (and posthumously) published in *Archiv für Psychiatrie*, 1868-69, p. 626. In an article published in the same journal in 1876 (p. 217), Oscar Berger christened the disease *Grübelsucht*.

Of the numerous names proposed by different writers, we prefer the one invented by Falret's patient as being the least open to criticism. The element *doubt* is, in fact, the most constant; and although it may be absent, it may constitute the only symptom during the whole course of the affection.

Symptoms.—Leaving the tactile element for consideration later on, we may perhaps describe the mental condition of a patient who is a prey to this malady

as one of metaphysical unrest, the individual being always perfectly conscious of his state.

But, in reality, we have to deal with a morbid condition which is very variable in its manifestations, and which justifies, according to the circumstance of the case, all the denominations successively conferred on it. One patient doubts everything, even his own existence, and is totally unable to arrive at any definite conclusion on any subject. Another manifests, in addition, a genuine dread of coming into contact with external objects, while yet another cannot discuss a subject without indulging in the tiresome process of hair-splitting, and, in doing so, exhausting all the subtleties of scholasticism concerning matters more or less frivolous or hackneyed. One of our own patients, whose case will be found recorded below, seemed to be haunted by the philosophical doubts of Descartes, and can be likened to those Buddhists of the far east, whose fundamental maxim is: All is emptiness.

But there is a characteristic bond of union between all these apparently different conditions. We refer to the intellectual agitation, comparable with the anxious form of lypemania—an affective unrest. “The real basis of this mental affection,” M. Jules Falret tells us (*De la Folie morale*, 1866, p. 41), “is a general tendency of the intelligence to recur unceasingly to the same ideas or the same acts, to experience the perpetual necessity of repeating the same words, or to accomplish the same actions, the patient never being able to satisfy himself or convince himself even on undoubted evidence.”

In another contribution (“*L'Encéphale*,” t. i. 1881, p. 21) we have described such phenomena as *intellectual impulses*. The following is a curious example: a school-boy, until then very regular in his habits, hears certain of his comrades joking on the subject of the fatal influence of the number 13. An absurd idea immediately occurs to him. If 13 be a fatal number it would be deplorable that God should be 13, that space should be 13, infinity 13, eternity 13. To avert such a disaster, he repeats at each instant in his mind an interjectional supplication thus conceived—“God 13!” or else, “Infinity 13!” “Eternity 13!” Nevertheless, he frankly acknowledges that it is ridiculous to picture God as 13 for one instant, in order to prevent Him being 13 for all time. But haunted by that fear which is cropping up perpetually, he repeats every moment of the day his mental orison, and ends by being incapable of continu-

ing his studies, or of pursuing any serious occupation.

Another of our patients—the man referred to above—provides us with an example of this delirium in its purest, highest, and most metaphysical form, and quite free from any extrinsic element. He is twenty-eight years of age, of an agreeable and intelligent aspect, and of good physique. He is the fifth child, his father being still alive and in good health, if we except a slight trembling with which he is affected. The family history is good, but the patient had convulsions in infancy, the last fit occurring at eight years of age. Since that time he has never been ill. At present he is the prop of his family, being employed in a bank, and earning, to his employer's satisfaction, 300 francs a month. He is very intelligent, although he received only a rudimentary education up to the age of fifteen, when he was put into business. He has never read the works of Descartes or of any other philosopher, and if he makes spontaneous allusions to abstruse questions, he is a metaphysician without knowing it. Having hitherto performed his duties at the bank very regularly and satisfactorily, he noticed one day, while seated at his desk, a sudden, strange change in the appearance of surrounding objects, which did not seem to him to be the same as heretofore. They seemed unreal. We cannot do better than give his impressions in his own words:—

“In June 1874 I experienced suddenly, without any pain or giddiness, a change in my manner of seeing. Everything seemed to me queer and strange, even though preserving the same shape and colour. Thinking that this disagreeable sensation would disappear as it had come, I paid no further heed to it, until I became aware of the presence of a polypus in my left nostril. The polypus was removed by a surgeon, to whom, however, I said nothing concerning the new condition I was in. I imagined that the polypus was the cause of the aberration of vision, and I hoped that its removal would lead to my recovery. But in this hope I was deceived.

“I continued, then, in this condition till December 1880, when I felt myself becoming less—disappear. There remained of my former self only the empty body. Since that time my individuality has completely disappeared; and all my efforts to regain possession of this escaped ego have been fruitless. Everything around me has become more and more strange, and now, not only am I ignorant of what I am, but I am unable to realise

what men call existence or reality. What is an event? Do surrounding objects really exist? What am I? Why am I? Who am I?

“I exist, but outside real life and despite myself. Nevertheless, nothing has deprived me of life. Why are there around me all these things that do all in the same manner? These things must be endowed with life, and exist really in the form in which they have been created. What are they, these things?

“Although I am in this atrocious condition, I am obliged to comfort myself as heretofore, without knowing why. Something which does not appear to reside in my body impels me to continue as heretofore, and I cannot bring myself to believe that it is true that my actions are real. Everything I do is done mechanically and unconsciously.

“A physical sensation affects me thus: My body, which has no signification for me, is empty. I experience a tightness in the temples, a constriction between the eyes, and a feeling as if the nose were being forcibly pulled towards the top of the forehead. My hearing is good, but my ears seem as if plugged. The left nostril is often obstructed, then free, and then again obstructed afresh. Notwithstanding these curious sensations, I reply promptly and correctly to any remark made to me. My duties have hitherto been satisfactorily performed, and yet it is no use my repeating continually to myself, ‘I am at work; I do this or that.’ I cannot convince myself that it is so.

“I believe my condition may be thus summed up: Individuality completely disappeared; I seem to have died two years ago, and the thing that exists has no cognisance of anything that has any analogy with my former self. The manner in which I see things does not enable me to realise what they are, or that they exist—whence doubt, &c. This frightful mental condition has led me to ask myself if I shall not become mad, or if it would not be better for me to deliver myself from an affection which has lasted so long, and upon which nothing has hitherto made the slightest impression. Unable to derive any enjoyment from life, and since life is, to me, something incomprehensible, I am yet obliged to endure all that other individuals, who themselves are in their normal state, are well able to endure.”

The dominant factor in the psychological state of this man is the complete loss of any idea of reality. He compares himself to an empty paper-bag. The interior of his body is empty; there remains only

the shell. He call himself a *thing*; other men are also "things" like himself, but he does not believe they really exist. He does not believe in the existence of what he sees, and, when he stretches out his hand to touch an object, he is convinced beforehand that he will find only a vanishing phantom. He does, however, really touch the object, but the tactile sensation, associated with the visual impression, does not suffice to overcome his incredulity. To him the world is only a gigantic hallucination. He eats, but it is only a shadow of nourishment that enters the shadow of a stomach. His pulse is only the shadow of a pulse. He is perfectly conscious of the absurdity of his ideas, but he cannot overcome them. The physical functions remain quite normal. He only complains of a slight constriction in the temporal regions and towards the root of the nose. Profoundly depressed by his moral condition, he fears madness. He acknowledges as much himself, and he came of his own accord to the asylum.

Esquirol's case is also instructive reading. A young woman employed in trade was continually haunted by a dread of doing the customers a wrong. When she made out a bill, she feared to charge too much. One day, on leaving the house of an aunt she was in the habit of visiting, the idea takes possession of her that she might, involuntarily, carry away in her apron pockets some article belonging to her relative. Later on, she spends much time in assuring herself that the accounts she writes are correct, fearing to commit some error, and thus cheat the customers. Still later, she dreads to receive change for fear she should retain in her hands a valuable coin. Vainly do her friends represent to her that it would be impossible for her to retain a coin in her hand without noticing the fact, and that contact with her fingers could not possibly alter the value of a coin. "That is true," she replied; "my dread is absurd, ridiculous; but I cannot help it." She had to resign her position, and gradually her apprehensions increased so that they tyrannised over her whole life.

The onset of the affection is rarely sudden, as in the case reported above; most frequently, as in Esquirol's case, the patient begins by manifesting queer scruples. He attracts attention by his eccentricities; he becomes incapable of applying himself to any kind of work. He is afraid of compromising himself; he reads over and over again what he happens to have written, and takes numberless precautions against mistakes. A medical man thus affected, after having

examined his patient, would hand him a prescription most carefully written. But no sooner had the patient left his consulting-room than he would rush out and snatch the document from him, fearing that he had committed some dreadful error.

But once the delirium has reached its complete development, the patient's acts, however absurd they may be, are less so than the ideas that revolve incessantly in his inner mind.

According to the ideas which predominate in their minds, these patients may be divided into several classes, of which the following are the principal:—

The Metaphysicians.—These patients ruminate over abstruse philosophical problems. They speculate on such subjects as God, the Universe, the Creation. They ask themselves who created the Creator; they seek the origin of language; they concern themselves about the end of things, the immortality of the soul. Or, turning their attention to physical phenomena, they indulge in speculations concerning natural laws, &c.

The Realists.—These deal with more or less trivial questions, which do not involve any elevation of thought. The Russian prince, mentioned by Griesinger, wondered why men were not as tall as houses. Another patient wonders why the stove heating his room is placed against the wall instead of being in the middle of the room. Yet another patient asks why there is only one moon, and not two.

Once started on this path, the patient clings with morbid tenacity to this self-interrogation about trivial subjects, which become to him a source of perpetual torture.

The Scrupulous.—Esquirol's patient, mentioned above, is a typical example of this class. The subjects of this form of the affection address to themselves reproaches on all conceivable occasions. They bore their hearers from the habit they have of being over-precise in expressing themselves, this over-precision being actuated by the dread of not telling the exact truth.

The Timid are those who, fearful of compromising themselves, take exaggerated precautions, and live in a state of perpetual dread of some catastrophe. A very intelligent lady-artist, mentioned by Legrand du Saule, could never walk along a street without apprehending seeing somebody fall out of window, and drop at her feet. She would speculate on the consequence of such an accident, and conjure up visions of being arrested and locked up on the charge of homicide.

The Reckoners are even more insufferable than the foregoing class. These are individuals who, wherever they may be, exhibit an anxiety to know the number of objects surrounding them. In a physician's consulting-room, they forget their object in coming there, and pass their time in counting the buttons adorning the doctor's waistcoat, or the volumes lying on the table. The patient whose case is reported by Legrand du Saulle would remark ingenuously: "Excuse me, it is involuntary; I must count."

The analogous mania appears to have characterised some of the acts of celebrated men. Dr. Samuel Johnson, when walking along the London streets, never missed touching every post he passed. If, by chance, he forgot one, he would retrace his steps in order to rectify the error. Napoleon I. also had the curious habit of counting, two by two, the windows of houses he passed.

But besides the above forms of the disease there are others which do not lend themselves to classification. We remember having seen a patient, in whose case an attack of rheumatic fever had determined the onset of insanity of doubt, and in whom the disease manifested itself in a peculiar manner. His will seemed to be paralysed. Whenever he attempted to leave or enter a house, he experienced an invincible resistance when he reached the threshold, and he would remain rooted to the spot till a friend had pushed him past the obstacle. Often on the highway he could not pass a tree or stone.

Our friend and former pupil, Dr. Barnard of Paris, has related to us how, one evening, he watched a gentleman in the Boulevard des Capucines who seemed to experience the same difficulty as Dr. Johnson in passing a lamp-post. At each lamp-post he would stop suddenly, touch it first with his hand, then with his foot, and, after many ineffectual attempts to pass by on his way, would, by a supreme effort of the will, succeed in overcoming his indecision, and rush past till he came to another post, when the same pantomime would recommence.

Again, as in the case of subjects suffering from intellectual impulsions, such a patient is haunted by certain words—*corbillard* (hearse) for example. Once this word has occurred to him, he thinks of nothing else all the rest of the day.

A certain proportion of these patients are, we are told, affected with an exaggerated dread of coming in contact with external objects. This is true, the symptoms having frequently been noted by different observers. But the disease may

be free from this complication. Our own case, quoted above, is a proof of this.

On the other hand, dread of contact with external objects may, in turn, exist without the phenomena of doubt. Morel, in his article on "Emotional Insanity," cites several such cases, and we have ourselves reported a remarkable example.*

Besides, the term "*délire du toucher*" being employed to designate tactile hallucinations, is inapplicable to this emotional insanity which, often but not necessarily, co-exists with insanity of doubt.

The following additional points will render this account of the disease fairly complete:—

(a) The subjects are conscious of the state they are in, and often voluntarily apply for medical advice.

(b) They never suffer from hallucinations. If hallucinations appear, the case is no longer one of pure insanity of doubt.

(c) These patients experience a perpetual yearning to have their doubts removed by the affirmation of a friend or bystander. A lady mentioned by M. Ritti feared every moment having said or done something wrong. A person in whom she had great confidence would on these occasions assure her that she was mistaken, and immediately she became easy in her mind. A lady from the country, who had come to consult us, no sooner entered our consulting-room than she began to express doubts as to the writer's being a medical man. On our assuring her that we really belonged to the profession, she requested to be allowed to have her assertion confirmed by the patients waiting in my drawing-room.

Often such patients, after having solicited reassuring replies and exhausted every form of question suggested by their imagination, will finish up with this very characteristic request: "Would you mind putting it on paper?"

One of the most curious cases of this kind is reported by M. Baillarger. A gentleman of about sixty had long experienced a morbid craving, every time he went to the theatre, to know all about the actresses he had there seen. He wanted to know their age, address, position in life, style of living, habits, &c. Tormented by this fixed idea he was, at last, compelled to deprive himself of the pleasure of visiting theatres. But very soon the same insatiable curiosity took possession of him with regard to every woman he met, *provided she was pretty*. He never went out without being accompanied by a person whose duty it was to

* "Annales médico-psych.," 1879, t. ii. p. 378.

reassure him on these occasions. Whenever he met a woman he repeated the same question, "Is she pretty?" His companion had to reply in the negative, and this reply would cut short an interminable string of questions. One day he left Paris by railway for a distant destination. In the hurry of departure he had neglected to ask his attendant if the female booking-clerk was pretty. Arrived, late at night, at the end of his journey, it occurred to him to put the forgotten question. Unfortunately the attendant for once forgot his part and replied that he really had not noticed. This sufficed to throw the patient into such a state of anguish that he was obliged to return to Paris at once to find out for himself if the person in question was or was not pretty.

We may sum up the description of this curious mental disorder by saying that, amidst all its divers manifestations, a sort of incorrigible *cerebral pruritus* reveals itself as its essential characteristic. In the same way when we dream we revolve painfully in a circle, from which we are powerless to extricate ourselves, the incessant repetitions of the same physical impressions reproducing the same series of ideas.

Insanity of doubt can hardly be said to be curable. But not unfrequently there occur remissions of long duration, when the patient seems to resume his normal condition. Unfortunately, this amelioration rarely persists; the patient generally becomes once more a prey to the same tormenting doubts. Those, however, in whom the disease declares itself at the age of puberty have a better chance of recovery than others, the progressive evolution of the organism appearing to have some power in ridding them of this psychological disorder.

On the other hand, if insanity of doubt is difficult to cure, it never terminates in dementia. In the last stages of the disease the subjects thereof, unable to apply themselves to any kind of occupation, sad and morose, shun all society and lead a life of self-imposed seclusion.

The **prognosis** is, then, very serious, seeing that in the vast majority of cases the patient's future is definitely ruined, despite the illusory and more or less prolonged periods of remission that may take place.

There are some patients in whom these remissions are wanting; they are, we are told, those who spring from a mentally tainted stock. In their case, the disease is said to pursue an uninterrupted course.

Ætiology.—The conditions giving rise to the malady are numerous. Most

authorities assert that insanity of doubt is one of the forms of so-called hereditary insanity. We are unable to corroborate that opinion, for it is now well known that this psychosis may exist in subjects whose genealogical tree is apparently irreproachable from the alienist's point of view. Such was the case in the example furnished by the man whose history we have given at length, and who appears to wish to resuscitate, on his own account, the philosophical doubt of Descartes.

The disorder often declares itself at puberty. Sexual excesses and masturbation have also been accused of provoking the onset of the disease. Intellectual excesses, anxiety, and worry seem to have been responsible for the appearance of the symptoms in certain cases.

Females are said to be more liable to the disease than men, and the subjects of it belong almost invariably to the higher classes.

More than once insanity of doubt has developed during convalescence after a serious illness—small-pox, enterica, diphtheria, cholera. The puerperal state has also given rise to it. We have seen an attack of articular rheumatism become the starting-point of this form of mental disorder.

Lastly, efficient causes are said to be found in moral shocks, strong emotions, and sudden frights. We are, however, often obliged to acknowledge that the cause is beyond our ken.

Treatment.—The indications for medicinal treatment are limited enough. Tonics and iron have been recommended, doubtless because the anæmia present in some cases is deemed responsible for the symptoms. Counter-irritation and drastic purgatives have likewise been employed with a view of relieving any cerebral congestion that may be suspected to be present.

But our chief reliance must certainly be placed on moral treatment. And by moral treatment we do not, of course, mean attempting to combat the doubts of the sufferer by reasoning him out of them. We should rather prescribe for him occupations, both physical and mental, calculated to withdraw his attention from the morbid ideas that exercise such a tyranny over him. For women we should prescribe household duties, the study of music and languages, riding on horseback, &c. For men we should recommend carpentering, turning, and such like occupations; and we must urge them to hunt, to shoot, to learn fencing, &c. For both sexes, travelling may be recommended. In short, the basis of all rational treat-

ment consists in combating idleness, and in leading the patient's thoughts into a healthy channel, the circumstances of the case being the guide to the choice of methods best calculated to attain these objects.

B. BALL.

DOUBTING - MADNESS. (See DOUBT, INSANITY OF; FOLIE DU DOUTE; GRÜBELSUCHT.)

DRAMATISM (*δρᾶμα*, an action; an act). Insane disposition to talk in a pompous or dramatic manner.

DREAM-WAKING. A term sometimes used for an illusion or hallucination.

DREAMING.—It is impossible to avoid in any consideration of this subject the ingenious remarks made by Aristotle on sleep and dreams. He points out that there are not only motions performed by those who are awake, caused by external stimuli and from internal passions, but that, when sleep takes place, such motions continue, or are even more apparent. In the daytime they vanish, in consequence of the action of the senses; but, when sleep overtakes us, the motions and passions have full play. What Aristotle appears to mean is this, that, as the senses are no longer occupied with external objects, internal operations are more easily perceived.

One of Aristotle's similes is attractive, however little it may bear scientific investigation. In still water, an image reflected upon its surface is clear and perfect in outline, but, if the water be agitated, the image is entirely distorted, or altogether vanishes. In sleep the parallel is observed, when phantasms, which in the daytime are produced by sensible objects, arise spontaneously; but under certain disturbing influences visions of monsters and other unpleasant dreams arise, as with those who labour under melancholy, have fever, or are intoxicated. Pleasant dreams, on the other hand, are caused when the agitation ceases. What has been stored up in the senses comes into play and acts upon the sensorium. Hence the sleeper may seem to hear or see as if he were awake. Aristotle compares the deception which occurs in sleep-perceptions to the effect produced in the waking state when some one presses upon the eyeball with the finger, causing double vision and inducing a person to believe that there are actually two objects. Occasionally even the dreamer says to himself that what appears to him is only a dream. A careful distinction is made between dreams originating entirely in the sensorium and those which are excited from without. Thus, he points out that we frequently seem to see a certain light in

sleep, but, when we awake, we at once recognise that it was a lamp in the room which caused it; or we dream we hear dogs barking, and discover that this is due to the actual bark of the dog. Men answer in some instances when they are interrogated. Hence it is possible to be both awake and asleep at the same time. Aristotle was aware of the fact that certain people never had a dream in their lives, while some always dream. Others, again, dream as age advances who never dreamt when they were young (see *περὶ ὕπνου καὶ ἐγρηγόσεως*, ch. vi.).

State of the Mental Faculties During Sleep.—Experience proves that there are differences of degree in the operation of the mental powers, from the slightest to the greatest activity. If our own memory could be trusted, which is very doubtful, mental action may be entirely suspended. Again and again, however, does it occur that persons believe that they have not had any dreams during the night, and yet some occurrence during the day re-suscitates a dream, and the mind is able to recall many circumstances connected with it.

That the exercise of thought—and this on a high level—is consistent with sleep can hardly be doubted. Arguments are employed in debate, which are not always illogical. We dreamt one night, subsequent to a lively conversation on spiritualism with a friend, that we instituted a number of test-experiments in reference to it. The nature of these tests was retained vividly in the memory after waking. They were by no means wanting in ingenuity, and proved that the mental operations were in good form. Poetry of no mean order has been composed (not by us). That the higher moral sentiments are called into action in some instances, must be admitted by those who take the trouble to analyse the motives by which they have been actuated during sleep. The conscience may be as loud in its calls and reproofs in the night as in the day. The judgment is certainly very weak. The most marked difference between the mental condition of the sleeping and waking man, is the inability to perceive the absurdity and impossibility of the events which appear to happen in dreams.

Closely connected with this characteristic of dreaming, is the inability to remember the facts of actual life. All that is remembered is the limited awakening of impressions, which at the moment are aroused in the dream, and appear on the field of consciousness. For a time a very large part of the memory is blotted out,

and hence the comparing faculty is unable to help the mind to perceive the gross absurdity of the relation of things which present themselves to the sleeper. Moreau (de la Sarthe)* has gone so far as to say that "what constitutes sleep is the suspension of the active operation of these functions of the understanding—the attention, comparison, judgment, and memory." Still, this dictum, as we have seen, must be taken with reserve. The memory must, notwithstanding its limited area of action, contribute largely to the imagery of the dreamer. Again, the memory freed from distracting thought as it is sometimes, is so vivid as to enable the sleeper to recall events, which had happened years before, and which had been entirely forgotten; or the error in a ledger which had been recently made, but was absolutely absent from the memory on the previous day, is recalled in a dream, and the fact verified by the individual on the following morning. One point is strikingly characteristic of the dreamer's mental attitude—he is usually free from the nervousness, or lack of courage, or dread of the opinion of others from which he may suffer during the waking state. It might almost be said that, in this state, everything is possible to him who dreams; on the other hand, there are conditions in which everything is impossible. Every effort is, from some inexplicable cause, frustrated, and it becomes as impossible to perform the simplest act, as in the former state the dreamer found himself able to swim or fly, without any of the ordinary limitations of actual existence. Again, whatever may be the mental deception which the partial functioning of the brain causes, whether there is a sense of increased or lessened power, the absence of what is understood as spontaneous action when awake, is abrogated during sleep. Further, there is the extraordinary change in the personality of the dreamer, to whom the loss of personal identity ceases to be strange, and he passes into the mind and body of the most opposite and improbable characters, without any sense of surprise or embarrassment.

The Sensory Centres are clearly in a state of activity in dreaming. We see familiar forms, and an endless combination of them; we travel in well-known localities, and we also see landscapes, which we have never viewed in reality. We hear the voices of our friends, and we may hear a voice other than a stranger, which may, or may not surprise us. At times the auditory centre is dormant,

* Lemoine's "Du Sommeil," p. 217.

while the visual centre is active. We dreamt that we perceived through a window a gentleman call at the front door. As the servant did not go to the door to let him in, we went to the top of the kitchen stairs, and shook the bell itself. We were greatly perplexed, however, that no sound was elicited. We tried again and again to make it ring; the tongue moved, but there was no sound. This illustrates the foregoing statement. On the other hand, an auditory hallucination may be so loud as to awaken the sleeper. The following instance is an illustration of this, and not only so, but exhibits the resuscitation of sounds familiar many years before. A German who had resided in England from his youth, and had married an English wife, who was accustomed to address him as "Henry," dreamt one night that he heard his mother calling "Heinrich" several times, and he awoke in consequence. He is positive that he had never been spoken to by his German name since he left Germany, and he is now about seventy years of age.

We have no facts which illustrate the condition of the gustatory, or the olfactory centres in dreaming.

The rarity of the excitement of these sensations has been commented upon by M. Brillat-Savarin. "When one dreams of a garden or prairie, one sees the flowers without smelling their perfume; if one is present at a dinner, one sees the viands without tasting them" ("Physiologie du Goût"). Max Simon thinks that this observation is less true in regard to the sense of taste. Macario has reported two cases in which even the olfactory sense was so strongly excited that the impression remained after the dreamer awoke.

In these observations we restrict ourselves entirely to sensorial excitement of a subjective character. The phenomena arising from the excitement of the senses during sleep from external stimuli, are of a different order. Thus, in regard to the senses of smell and taste, they may be rendered active by acting upon them from without, and dreams of a corresponding sensorial character be induced. The scent of eau-de-Cologne made M. Maury dream that he was in a perfumer's shop, namely in Cairo, in the establishment of Jean Farina. Burning a lucifer match led him to dream that he was on a sea-voyage, and that the gunner's room had exploded. The Marquis d'Harvey found from his experiments that the same tastes and odours can cause the reproduction of analogous dreams (see "Le Monde des Rêves," par Max Simon, 1888, p. 29).

That sounds falling upon the ear will

excite dreams in which they mingle, is notorious, as is also the fact that general sensations, of a painful or pleasurable character, may readily induce similar dreams. Again, some physical disorder, as inflammation of the throat or paralysis of a limb, may suggest a particular dream, and this occurrence has no doubt led in such instances to a belief in the prophetic character of dreams—an example obviously of placing the cart before the horse.

“Hypnagogic hallucinations” is a term which has been applied to those fantastic images which not unfrequently arise just before going to sleep, or before being thoroughly awake. The latter state is much more favourable to their creation, in our experience, than is the former. In some instances the connection between these appearances and a preceding dream is very clear. In fact, although aware that we are no longer asleep, we find it difficult to escape from the sights and sounds by which we are being surrounded. Sometimes indeed, although very rarely, it is possible to return to the land of dreams, and reunite the link in the chain which has been severed. Thus, an elderly lady awoke from a dream in which she heard two verses of a poem which had not been in her mind for a great many years, and was able to repeat them on waking. She was aware that one verse was wanting, but she could not recall it. She again fell asleep, dreamt she heard the verse that was wanting, awoke, and was able to repeat it also. No doubt, in regard to hallucinations immediately preceding sleep, they are often the outcome of the real scenes of the day, as for instance when the features of some person which have been vividly impressed upon us during the day, continue to haunt us, and reappear in this intermediate state.

The state of the **motor centres** falls under **SOMNAMBULISM** (*q.v.*).

Few observations have been made, so far as we are aware, in regard to the **dreams of the insane**. In the first place, there can be no doubt, that terrific dreams are referred to by the insane as having been the immediate precursor of the attack. In the second place, the character and colour of the dream-life of the insane are sometimes in complete contrast with the daily mental condition. We have known a lady, the subject of melancholia, entirely free from her troubles during the night. She thoroughly appreciated the escape from her tormenting foes. On the other hand, with some patients, the delusions of the day recur to the dreamer and leave him no peace. A general paraly-

tic may have delusions of grandeur when he is dreaming.

The remarkable analogy between the dreams of the sane and the hallucinations of the insane is too marked to have escaped the notice of the psychologist. They have this in common, that auditory and visual hallucinations as well as those of general sensation are frequent, while those of taste and smell are decidedly rare.

We have known a remarkable instance of a gentleman dreaming that he had performed an act which rendered him liable to legal consequences and for which he had been arrested. On awaking he was greatly relieved to find it was only a dream. In the course of two or three weeks, he committed the act in an insane condition of mind, was arrested and brought before the Police Court. He was not, however, imprisoned, his friends engaging to take care of him.

THE EDITOR.

[References.—Le Monde des Rêves, par P. Max Simon, Paris, 1888. Le Sommeil et les Rêves, par L. F. Alfred Maury, Paris, 1878.]

DRESS.—The dress of the insane is, for many reasons, a matter of considerable importance. It is not to be disregarded as an element of treatment, and its sufficiency and suitability are of moment in relation to the low vitality and loss of resistive power which co-exist with some forms of mental disease.

Speaking generally, the dress of insane persons in asylums should be in as close harmony as possible with that of persons in the same rank of life outside asylums, so that there may be no loss of self-respect on this account.

Vanity in personal adornment is by no means to be universally deprecated in them, for it both frequently indicates and itself promotes, an improvement in the mental condition of the patient.

A change of dress to that of a superior character will often seem to arrest a progressive tendency to mental degeneration, and furnish a starting-point for a return to health.

There are, of course, numerous valid arguments in favour of a uniform dress for the patients in pauper asylums, but there are so many objections to it, based upon the principle we have indicated, that many superintendents decline to adopt it, preferring a more varied and less suggestive costume. Where, however, it is adopted, it may be varied with great advantage by the introduction of diverse colours and patterns such as are now easily procurable at a moderate cost. But cheapness is not invariably true economy in rate-paid dress any more than in other

directions, and the curative influence of good clothing is not to be overlooked. It is especially necessary to bear in mind the tendency of the insane to suffer from exposure to cold. The clothing should, therefore, be ample and warm.

Inexpensive woollen cloth of good quality and varied colours and patterns may be obtained from numerous manufactories in Ireland and elsewhere. The Industrial School at Kilmacthomas, near Waterford, supplies excellent and durable fabrics of this character at from 2s. to 2s. 8d. a yard.

For women, woollen dresses should be worn in winter, both because of their superior warmth, and as not exposing the wearers to the same danger from fire as dresses made of cotton. These are to be obtained from any good draper in considerable variety, and at very moderate prices. Thus, Scotch winseys in brown and grey are sold at 5½d. a yard, and Union serges in many colours at 6¼d. Of prints for summer wear there is, of course, an infinite variety at low prices. The tendency of many patients is to destroy and remove their clothing, but this can be kept within narrow limits by careful and persistent attention on the part of their attendants. The value and capability of an attendant may generally be measured by the check which he is able to keep, without much friction, upon destructive and insubordinate acts by the patients under his charge.

In some instances it may, however, be necessary, in order to insure that the patient be properly clothed, to use special dresses made of warm, strong, untearable material, padded and quilted, and fastened behind by screw buttons or other special appliances; but, even under such circumstances, with the present abundance of strong material in art colours and patterns, a little thought and taste can insure these being unobjectionable in appearance, while equally durable and strong with the ugly and distinctive ticking clothing which was formerly used for this purpose.

Very strong, warm, and nice-looking garments may be made by quilting and padding Bower's Regattas in stripes and checks at 6½d. a yard, or the Yarmouth shirtings at 8½d. and some of the modern tickings are pleasing in pattern and colour.

For noisy and destructive patients, and especially those of this class who are also suicidal, but cannot sleep in associated rooms, strong, quilted bed-gowns of sail-cloth, which are practically indestructible, may be very occasionally necessary. But it is particularly important that all these expedients should be regarded as undesirable and, unless in extreme cases,

unnecessary, and that those who have immediate care of the patients should understand that the continued or frequent destruction of clothing and the need of special appliances for its prevention, will be regarded as an evidence of incompetency or inattention in the discharge of their duties. F. NEEDHAM.

DRINK AND INSANITY, (*See DRIPSOMANIA.*)

DRIVELLING (Mid. E., *drincken*, for *drabelen* and *drabbelen*, from Ir. *drab*, a spot). An involuntary flow of the saliva, as in old age, infancy, and idiocy and mental stupor. Senile weakness of mind.

DRUNKENNESS.—Drunkenness is an *ensemble* of temporary cerebro-spinal disorders caused by the ingestion of a great quantity of alcoholic drink in a very short time. It is actual acute intoxication (*alcoolisme cérébro-spinal aigu* of Lancelleaux), which ought to be only an accident in the life of man, because, if often reproduced, it will be reckoned among the number of symptoms of chronic alcoholism, of which it becomes one of the syndromata. For a man who does not give himself continuously to alcoholic debauchery, drunkenness means a real psychological experience. It is understood that the form of drunkenness varies according to the reactions in each individual. It also varies in consequence of other circumstances—as the quantity of alcohol absorbed, the state of emptiness or fulness of the stomach, the season, the conditions of atmosphere and of temperature, &c. Outside the individual the cause which most profoundly alters the form of drunkenness is the nature and quality of the alcohol absorbed. About this we shall now say a few words, reserving the consideration of abnormal drunkenness due to the reactions in certain predisposed individuals to a later period.

The drunkenness which may be considered most typical, if not most common, is that produced by liquors the base of which is ethylic alcohol. We shall describe it very summarily, because its form is too well known to render it necessary to go into minute details.

Two periods are to be distinguished in complete drunkenness—one of excitement, the other of depression.

In the **first** all the functions are increased. Intellect is more lively, memory is clearer, imagination is more vivid. Gaiety, exuberance, loquacity are its consequences. The excitement extends to the motor functions; the man feels stronger and more alert; he is lively, gesticulates, sings, dances about. His face is animated; his look is bold. Conscience, however, although not quite extinct, sleeps a little.

A drunken man often loses the perception of his situation. Trustful and happy, he often does not measure his words, and sometimes speaks to the damage of his own interests what he would have concealed at ordinary times. This state of inebriety allows the innermost nature of the individual to manifest itself to the outside world with some exaggeration. If ordinarily irritable, violent, aggressive, and peevish, he becomes still more so; he will show himself sad and melancholy if his temperament is taciturn; or exalted, furious, and ambitious if he is naturally infatuated with himself. Wine unmasks the character, and at the same time the general functions are increased—acceleration of circulation, sexual erethism, finer sensibility, &c.

In the **second** period, which follows the ingestion of another dose of alcohol, the picture changes. The inebriated person has vertigo; his intellect becomes confused, the ideas become incoherent and disordered, imagination becomes extinct, conscience disappears, and the senses are blunted or perverted. Talk becomes confused and speech difficult. On the part of the motor functions movements become uncertain and feeble, in consequence of the state of vertigo and of the diminution of the excito-motor power of the spinal cord. The will becomes powerless, the man reels, and at last falls down in a more or less profound collapse with relaxation of the sphincters. The cerebral functions seem then to be extinguished, and a deep sleep commences, accompanied by stertor; vomiting succeeds; the body is bathed in perspiration; hyperæsthesia of the skin is followed by anæsthesia, especially in the extremities, temperature sinks, the skin becomes cold and pale or purple.

After some hours of sleep the individual regains his senses gradually, but he feels uneasy and his head aches; his senses are blunt, and his ideas confused; he also has vertigo, which only disappears after a while.

This is the ordinary drunkenness. We have said that the form is often modified by the quality of the liquors absorbed. Nothing, indeed, varies more than the composition of the spirits of commerce. If we do not consider the divers essences which may be combined with alcohol, and only direct our attention to the alcoholic basis, we get the key to the different acknowledged forms of drunkenness (apoplectic, comatose, and convulsive forms).

The liquors of commerce are nowadays very much adulterated: ethylic alcohol is only found exceptionally in a pure state; many liquors, especially those which cost little, and which commerce places at the

disposition of the poor, have as a basis amylic alcohol, and this, seven times more toxic than ethylic alcohol, produces comatose symptoms, and the so-called *comatose drunkenness* has probably its cause in the action of amylic alcohol; the body becomes weak and insensible, the pulse is very weak, and sometimes death closes the scene in a few hours. The inebriated individual presents the aspect of a patient struck down by an apoplectic fit.

We have to make an analogous remark on certain forms of drunkenness which Percy has described under the name of *convulsive intoxication*. Pure alcohol does not physiologically produce convulsions, at least if it is not combined with other products of distillation, as the *furfurol*, contained in certain grain alcohols (Magnan and Laborde), or if it does not hold in solution substances which cause epilepsy, as absinthe (Magnan, Motet, Laborde). If drunkenness is accompanied by convulsions, then these symptoms are complications of ordinary drunkenness due to the action of the factors which we have just enumerated. Other cases of convulsive intoxication have evidently their cause in a pathological condition of the individual present before, and of which we shall speak later on.

Convulsive drunkenness consists of a sort of hyperacute maniacal condition. The patient becomes suddenly the prey of a veritable delirious frenzy, in which he is extremely dangerous. He is unconscious during the whole duration of the attack, and does not preserve any recollection of it. At the same time, general convulsions come on, resembling epilepsy. We may add that it is often a real epileptic attack brought about in a predisposed individual by the ingestion of alcohol and aggravated by intoxication.

The liquors and beverages of commerce with an alcoholic basis (eau de vie, beer, &c.), whatever otherwise their composition may be, act mainly from their alcohol, and consequently we have to consider the divers varieties of alcohol in order to explain the abnormal phenomena of drunkenness which they produce. But the more or less deleterious substances they contain have an equally noxious effect, which naturally varies with the nature of the poison. The form of drunkenness may in some details be modified, which, however, do not affect the unity of the clinical picture as we have described it. Inasmuch as here the question is not so much about alcoholism strictly speaking, we shall not follow it up further. It is impossible to draw a general picture of all these secondary intoxications, which have not even yet been

properly studied. There is, however, one among the substances which is well known nowadays, absinthe. Its action is very peculiar. We have already referred to the subject under ABSINTHE.

Treatment.—In most cases drunkenness subsides without treatment. At the period of excitement the patients must be isolated, and all objects must be taken away by which they might do harm to themselves or to others. It is of importance not to use force (manacles), which irritates the patients and may cause accidents. The elimination of the alcohol is brought about by emetics (ipecacuanha) and by abundant aqueous drinks causing efficient diuresis. Exercise in the open air helps the lungs to eliminate the poison more easily.

During the second period it is well to avoid cold, to abandon emetics as causing depression, and to arouse nervous energy by warm stimulating drinks, by ammonia or by coffee. To prevent collapse and coma we have to apply friction over the whole body, artificial warmth, and, if necessary, electricity.

In the convulsive form we best avoid accidents by placing the patient in a padded room, giving sedatives, Swedish baths, the bromides in large doses, and narcotics.

The consequences of drunkenness are best treated by rest, purgatives, and tonics.

M. LEGRAIN.

DUALITY OF BRAIN, DUALITY OF MIND (*dualitas*, the condition of two). Names given to the supposed distinctive actions of the two cerebral hemispheres; the supposition that they are capable of acting independently of each other, and that each individual thus really possesses two distinct minds. (See DOUBLE BRAIN.)

DUBINI'S DISEASE. Electric chorea (*q.v.*).

DUMBNESS (A.S. *dumb*, silent). The condition of a person unable to speak or utter articulate sounds. It may be due to defective mechanism, such as malformations or injuries of the tongue, palate, or other necessary structures, to defective innervation the result of idiocy or other central or peripheral causes; to deafness or very defective hearing (see DEAF-MUTISM) and to intellectual disorders or emotional disturbances. (See HYSTERIA, DEAF-MUTISM, AND IDIOCY.)

DUMBNESS FOR WORDS. One of the forms of aphasia in which, without any affection of the auditory or speech organs and without loss of intelligence, words cannot be articulated. (See APHASIA.)

DYÆSTHESIA (*dús*, difficulty; *αἴσθησις*, sensation). A term for dulness

of any of the senses, particularly touch; also for perverted sensations such as numbness, tingling, formication, tinnitus aurium, sparks, fogs, peculiar odours, &c. Also and more frequently used to denote the painfulness of a sensation which in a normal condition is not so. Thus Charcot describes under this term a distressing pain of a vibratory character, which radiates up and down from a part of a limb which is touched or to which a cold body is applied; after lasting some minutes a similar pain may be felt in the other limb. (See HYSTERIA.)

DYÆSTHESIA INTERNA (*dús*; *αἴσθησις*; *internus*, within. A synonym of Amnesia (*q.v.*).

DYÆSTHESIA, RECEPTIVE (*dús*; *αἴσθησις*; *recipio*, I receive). Distressing sensations of various kinds felt commonly at the vertex or back of the head. There may be a feeling of pressure or expansion, a burning, throbbing sensation, a sense of fulness or emptiness of the head, tingling, creeping sensations, a feeling as if the head were being alternately opened and shut. The condition is frequently found in brain-workers during early adult life, in females at the climacteric, in hypochondriacs, melancholiacs, in masturbators, and in gouty subjects. The chief agency in these subjective sensations is the mental condition of the patient, the actual sensory impression, frequently headache, being misinterpreted and intensified by the constant direction of the attention to the part. With these sensations there are frequently associated tenderness of the scalp, giddiness, mental confusion in the absence of true insanity, failure of memory, and other functional disorders. (See HYPOCHONDRIASIS, MELANCHOLIA, &c.)

DYSANAGNOSIA (*dús*, difficulty; *ἀνάγνωσις*, recognition, also reading);

DYSLEXIA (*dús*, difficulty; *λέξις*, diction). Synonyms of Word-blindness (*q.v.*)

DYSAPHE (*dús*, imperfect; *ἀφή*, touch). A morbid sensation of touch.

DYSAPOCATASTASIS (*dús*, difficult; *ἀποκατάστασις*, re-establishment, restoration). A feeling of morbid discontent with restlessness of mind.

DYBULIA (*dús*, imperfect; *βούλομαι*, I will). Difficulty in the exercise of the will; will-inhibition. (Ger. *Willenskrankheit*.)

DYSGEUSIA, DYSGEUSTIA (*dús*, bad or imperfect; *γεῦσις*, taste). A morbid or depraved taste such as is observed in hysteria, pregnancy, &c. (Fr. *dysgeusie*; Ger. *der krankhafte Geschmack*.)

DYSLALIA (*dús*, imperfect or difficult; *λαλία*, speech). An old term for

difficult or indistinct articulation. Now used to denote those speech defects which are caused by organic changes in the external apparatus of speech, the muscles, and motor nerves or other mechanism.

DYSLOGIA (*δύς*, imperfect; *λόγος*, a word or speech). A defect of speech in which the individual words are correctly formed, but are so put together as to express a disturbance of thought.

DYSMIMIA (*δύς*, with difficulty; *μιμέομαι*, I imitate). Difficulty in producing gestures or signs to illustrate language.

DYSMNESIA (*δύς*, imperfect; *μνήσις*, the memory). A weakness or defect of memory. (Ger. *Gedächtnisschwäche*.)

DYSNEURIA (*δύς*, imperfect; *νεῦρον*, a nerve). A failing condition of the senses, weakness of mind. (Fr. *dysneurie*.)

DYSNUSIA (*δύς*, bad or imperfect; *νοῦς*, the mind). Weakness of mind or intellect. (Ger. *Verstandesschwäche*.)

DYSOREXIA (*δύς*, bad; *ἄρεξις*, appetite). A term for a depraved or morbid appetite. (Fr. *dysorexie*.)

DYSPHAGIA GLOBOSA (*δύς*, difficulty; *φαγεῖν*, to eat; *globus*, a ball).

DYSPHAGIA HYSTERICA (*δύς*; *φαγεῖν*; hysteria, *q.v.*). Synonyms of Globus Hystericus.

DYSPHAGIA SPASTICA (*δύς*; *φαγεῖν*; *σπαστικός*, subject to convulsive movements). Difficulty of swallowing

from spasm of the muscular coat of the oesophagus or pharynx, as in hysteria.

DYSPHASIA (*δύς*, bad; *φάσις*, speech). Difficulty of speaking from the loss of the idea of words; derangement of the faculty of diction or the regular and intelligent arrangement of words.

DYSPHORIA (*δύς*, badly; *φορέω*, I bear). A term used by Hippocrates for the mental anxiety and restlessness which accompany many diseases.

DYSPHORIA NERVOSA (*δύς*; *φορέω*; *nervosus*, nervous). **DYSPHORIA SIMPLEX** (*δύς*; *φορέω*; *simplex*, simple). Synonyms of what is popularly known as the Fidgets.

DYSPHRASIA (*δύς*, badly; *φράσις*, speech). Difficulty of speaking from deficient ideas; defective speech from impairment of intellect.

DYSPHRENIA (*δύς*, badly; *φρήν*, the mind). Synonym for Mental Disorder.

DYSTHYMIA (*δύς*, bad; *θυμός*, the mind). A word used by Hippocrates (*δυσθυμία*, Aph. vi. 23, for sadness of mind; melancholy. (Ger. *Missmuth*.)

DYSTHYMIA ALGETICA (*δύς*, bad; *θυμός*, mind; *ἀλγέω*, I suffer pain). Emminghaus's term for mental perversion due to any peripheral nerve irritation.

DYSTHYMIA NEURALGICA (*δύς*, bad; *θυμός*, mind; *νεῦρον*, a nerve; *ἄλγος*, pain). Schüle's term for mental disturbance due to peripheral nerve irritation, and especially that due to facial or other neuralgias. (See NEURALGIA.)

E

EAR.—It was a favourite theory with M. Foville *père* that the outline and structure of the external ear indicate the development of the brain, and that some ears are characteristic of a neurotic constitution. We are afraid that no practical results followed his observations. According to him these relations are so definite that one never finds two ears symmetrical when the two sides of the head are not so. Of course there may be an apparent exception to this rule, in consequence of one ear being atrophied from some local cause. M. Foville announced his views in his "Traité de l'Anatomie du Système Nerveux," 1844.*

* His grand-nephew, M. Parant, informs us (since this article was in type) that M. Foville has not expressed in his writings, but certainly believed, that the general form of the auricle (pavillon) of the ear and its regularity may indicate the form

That there is a general harmony between mental and bodily forms, including the ear, may be admitted. No one can visit an idiot asylum without being struck with the number of unshapely, ill-formed ears. The "Cagot ear" is proverbial, but, as a matter of fact, we do not find it characteristic of these people at the present day, and there is no sufficient evidence that this ever was the case. Recently Dr. Vali made an examination of the ears of

and regularity of the brain. If the contour of the auricle is properly rounded, and the helix is well formed, it affords a general indication that the cerebral surface is so likewise. Whence it is possible to a certain extent to establish the relations between the form of the ear and the development of the brain, and consequently that of the intellect of the individual. Assuredly this mode of regarding the subject is frequently borne out by fact; but the statement ought not to be regarded as absolutely correct.

1000 healthy men and women, and some hundreds of idiots and imbeciles. The result was, he found that 26 per cent. of the healthy men, and 15 per cent. of the healthy females, presented malformed pinnæ. He found that as many as 50 per cent. of the idiots and imbeciles had the same defect. It is stated that prolongation and pointing of the tip of the ear were twice as common in the mentally defective classes as in the sane; shortening, elongation, or bridging of the scaphoid fossa followed the same rule. Projection of the anti-helix, above the level of the helix, was especially frequent in imbeciles. In idiots it occurred about three times more frequently than in sane persons. Partial or complete fusion of the helix with the anti-helix existed twice or three times as often in imbeciles and idiots as in sane individuals. His observations further showed that in most cases the anomaly is bilateral; if confined to one side, that side is usually the left.

A very elaborate article has been written in the *Archiv f. Psychiatrie*, xx. pp. 514-564, 1888-9, by Dr. Binder, Assistant Medical Officer at the Königl Heil u. Pflege-anstalt, Schussenried, giving the result of the examination of a considerable number of the insane, as well as of the sane.

In the non-hereditary cases it was not clear that the number of deformed ears was greater among the former than the latter. In patients with insane inheritance, however, there appeared to be a somewhat larger proportion of ears presenting some peculiarity. As many as 58 per cent. had what has been termed "Morel's ear,"—that is to say, an abnormality of the helix, anti-helix, fossa scaphoidea, and crura furcata. The folds of the ear are flattened down, having the form of a plate as if ironed, and the rim is thin, and the whole ear is larger than usual.

Reckoning cases of adherent lobules, and taking only patients having an insane inheritance, the proportion of abnormal ears was 67 per cent.

By "Wildermuth's ear" is understood one having a too prominent anti-helix.

"Darwin's ear" is a phrase employed to mark the absence of the upper part of the helix and the formation of cartilaginous nodules in the helix.

"Blainville's ear" marks the asymmetry of the two ears.

In "Stahl's ear" the helix is flat and folded over, forming one mass with the anti-helix at its bifurcation, so that the fossa ovalis is not visible, nor is the fossa scaphoidea. (*Allgem. Wien. Med. Zeitung*,

March 17, 1891. *Brit. Med. Jour.*, April 11, 1891.) (See HÆMATOMA AURIS.)

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EAR, ASYLUM; EAR, BLOODY TUMOUR OF; EAR, INSANE. Synonyms of Hæmatoma auris, from its frequent occurrence in asylums and among the insane. (See HÆMATOMA AURIS.)

EARLY LIFE. (See CHILDREN, INSANITY IN.)

EARTH-EATING. The use of earth as food, either as a natural or morbid condition. (See CACHEXIA AQUOSA, HYSTERIA, &c.)

EBRIICATION (*ebrio*, I make myself drunk). A Paracelsian term for the mental affection or condition produced by excessive indulgence in alcoholic stimulant.

EBRIÉCATION CÉLESTE (*ebrio*; *caelestis*, from *cælum*, heaven). A term applied by Paracelsus to the religious excitement and enthusiasm of the insane.

ECCENTRICITY ($\epsilon\kappa$, from; $\kappa\epsilon\upsilon\tau\rho\nu$, the centre). Literally a deviation from what is customary; an oddity or peculiarity. A strong individuality with but little vanity, a possession of broad and original views combined with great moral courage, an emancipation from vulgar prejudice and an utter carelessness of the world's blame or censure. (Maudsley.) Eccentricity differs from monomania in that it is not a change of character, but a persistence of an odd habit, and that it is under control of the will. (See article, *infra*.)

ECCENTRICITY. — Diagnosis. — It may be granted at once that no test applicable to all cases can be laid down by which eccentricity can be differentiated from insanity. That which would be only the former in one person might be a conclusive proof of the latter in another; in other words, an alleged peculiarity of act or mode of speech cannot be isolated from the individual. Education, environment, race, religion, social position must all be taken into account, in estimating the degree of importance to be attached to an individual's conduct, when his sanity is called in question. So, also, must the age in which a person flourished. What might justly be regarded as eccentric at the present day would have been neither eccentric nor insane in the fifteenth century.

So far from maintaining that there exists a hard-and-fast line between insanity and eccentricity, we should be disposed to hold that much of what is understood as eccentricity at the present day, after making every allowance for educational and other influences calculated to bias the character, is suspicious as indicating mental peculiarity, whether con-

stitutional or acquired. Doubtless, in proportion as mental disorder is scientifically understood, the domain of eccentricity will contract, and that of insanity expand.

Symptoms.—Absence of mind may be instanced as a familiar characteristic of some persons who certainly must be regarded as perfectly sane. With some it may only arise from the habit of concentrating the mind on some profound study. In others it means nothing better than "wool-gathering." In a certain number, however, it signifies a more serious mental condition, a defect of character, or an acquired weakness.

Eccentricity has been divided into that form in which a man's departure from the usual customs and ordinary habits of life are distinctly unreasonable, and into that in which there is a plausible pretext for the course pursued by the eccentric person. It may take some time, as regards the latter form, to determine whether the apparently reasonable action of an individual is or is not justified by experience. Before the present fashion of wearing the beard was introduced we knew a gentleman whose practice of allowing his hair to grow on the face was accepted as one among other indications of insanity. The same remarks apply to the action of any one who has the courage to wear a more wholesome article of dress than his fellows. All depends in these cases upon whether what seems to those around him to be peculiar is justified by the event, or is proved to be the outcome of unmitigated eccentricity. It is no doubt very likely to happen that no one but a somewhat unusual character would brave the ridicule of others by his singularity; the dress adopted may notwithstanding be an improvement upon the ordinary costume. We should have thought it exceedingly probable, in spite of the opinion of a very high authority, that the first person who used an umbrella in England was eccentric. And as a matter of fact, Jonas Hanway, who introduced umbrellas, although a benefactor to all who live in a rainy climate, is said to have been so.

Again, from another point of view, eccentricity, as pointed out by Dr. Bucknill, is manifested in a twofold manner. In the one, the characteristic feature is individuality carried to an extreme. The man who belongs to this class is not troubled with vanity, and pursues a career marked out by himself, quite apart from those around him, to whom he therefore seems strange and by whom he is called peculiar. In truth, he does not deserve the appellation of eccentricity in an unfavourable sense, although in a literal one the term is apposite, because he moves in a circle

outside the centre in which he found himself placed by birth and surroundings. The individual who belongs to the second class has a largely developed organ of the love of approbation, which is altogether out of proportion to his mental power, especially his judgment. He is capricious. Obviously there is an approach to actual weakness of character, and the frontier of mental disorder may at any time be crossed.

Very certain it is that when the question of testamentary capacity arises and the decision lies between eccentricity and actual insanity, there is no chance of arriving at a fair conclusion apart from the study of the individual himself in relation to all his circumstances, social, religious, and racial.

It is very difficult to agree with the view taken by Dr. Conolly in reference to the mental condition of several cases which he adduces as examples of eccentricity apart from insanity. Of an individual who took offence at the sun and closed his windows, resolved to live in a room lighted only by a candle, Dr. Conolly observes, "This was only eccentricity," and yet it seems clear that he laboured under a delusion. Although restraint or compulsion might not be at all necessary in the interest of others, we hold that it would have been quite justifiable to treat him as an invalid, and therefore interfere with his freedom of action. So, again, we should dissent from Dr. Conolly in regarding that gentleman as sane and merely eccentric—an aggravation of what nervous persons are very subject to—who had an aversion to speak to his family or any one else, and who generally clasped his hands, frequently exclaiming, "Lord have mercy upon us, what a wicked world this is!" Nor can we accept the explanation given by Dr. Conolly of the mental condition of a young lady who discontinues her usual occupation, is no longer amused with her books, neglects her music and drawing, will not take exercise without being forced to do so, and prefers to sit by the fire motionless, silent, and unoccupied—viz., that it "consists in the sluggishness in the faculty of attention which accounts for all the other phenomena of that class." In short, it is nothing more than a malady of attention. ("The Indications of Insanity," by Dr. Conolly, 1830, p. 126.) In these instances the line between eccentricity and mental disease was surely obliterated and the acts performed by the persons spoken of might fairly be called in question.

Examples.—One of the most extraordinary examples of eccentric thought and action is to be found in a movement which occurred in New England within the last

half-century and to which the appellation of the "Newness" was given. Mr. Alcott was a vegetarian, and refused to take coffee, molasses, and rice, while his beverage was only water. He disapproved of forcing the land by the use of manure. He distinguished between vegetables which aspired upwards, as wheat and fruit trees, and those which grew downwards, as potatoes and radishes. The latter class he considered it improper to eat. Loaves of bread he himself made and formed in the shape of animals, &c. Like Blake, he regarded clothing as unnecessary, and professed to think that daylight as well as raiment was opposed to spiritual life. It was only at night that he went out to take exercise, and the single white garb, extending from the neck to the knees, which he wore, but regarded as very unnecessary, created some alarm and led to his being pursued as a ghost. That such a man should induce others to imitate him and form a community at Harvard, not many miles from Boston (Mass.), would astonish us were it not an oft-repeated fact in history. Was Alcott insane? Emerson regarded him as a philosopher devoted to the science of education, and declared that he had singular gifts for awakening contemplation and aspiration in simple and in cultivated persons. We owe this statement as well as a highly interesting account of the "Newness" to Mr. Robert Carter (*Century Magazine*, November 1889), who states that this remarkable character "was self-educated, but had acquired a rare mastery of English in speech, though his force and subtlety of expression seemed to fail him when he wrote. . . . His conversation has been pronounced by the best judges to have been unrivalled in grace and clearness." A cold winter was the means of converting Mr. Alcott to ordinary notions of the world in regard to dress, and his following appears to have quickly dissolved. Other persons passed through very similar mental phases about the same period. After perusing what has been related by those who were acquainted with these New Englanders, we find no evidence whatever of mental disease, and regard them as illustrations of peculiar psychical constitutions which under remarkable upheavals of religious thought fell into eccentric courses, but did not become insane. Such persons, although constitutionally susceptible to impression and to fantastic suggestions, are not to be confounded with those inborn and inherited characters which no circumstances, however favourable, would be likely to alter.

One form of eccentricity is marked by quitting society and living a hermit's life, regardless of the usages of society, careless as to dress and cleanliness. Such a proceeding was no indication of eccentricity when the hermits of the desert escaped from the world and resolved to lead an austere and ascetic life. But it cannot be regarded in the same light when an Englishman reverses the habits of a lifetime and allows his dwelling to run to waste and his person to become covered with vermin. Such behaviour may fail to bring its subject within the legal definition of insanity and be labelled eccentricity, but it very closely approaches it in all instances, and in some, insanity is clearly developed.

In the well-known instance of the Hermit of Red-Coats Green differences of opinion existed, but the writer has no hesitation in stating from personal knowledge that Lucas was mad. (For description of the case see *Journal of Mental Science*, October 1874.)

In a trial before Lord Ellenborough and a special jury, an action was brought by Miss Faulder against the executors of one Jervoice to recover the arrear of an annuity, which the latter granted to this lady. The solicitor by whom the deed was prepared, as also his clerks, testified to the competency of the alleged lunatic when he executed it. The attesting witnesses were Dr. Murray, his physician, and Mr. Fourniaux. Lord Hood, a witness, concluded his testimony with a solemn declaration of his conviction that Jervoice, although eccentric in his habits, mode of life, and appearance, was fully competent to confer the annuity. The Attorney-General (Sir Vicary Gibbs) insisted that Jervoice when he granted the annuity was competent to do so. All the incoherences of Jervoice he classed under the head of folly rather than madness, repeating from Horace, "The man had the right of riches to commit them." Lord Ellenborough observed to the jury that even the fact that an inquisition had found Jervoice a lunatic during the period when the *annuity deed* was executed was not conclusive evidence of insanity; and if the jury should be of opinion that when he granted the annuity he had such possession of his intellects as rendered him perfectly aware of what he was doing, and had followed the dictates of his mind when fully possessed of reason, their verdict should be in favour of the annuity. The jury returned the verdict in favour of Jervoice; that is to say, they regarded him as "fully possessed of reason." There is good ground for be-

lieving that the judge concurred in the verdict, yet the eccentricities of the defendant comprised riding about the country on a donkey, he being dressed in a white hat, blue trousers, red morocco slippers, a white linen shirt, without either coat or waistcoat, but wearing sometimes a waggoner's frock. He frequently travelled in a carriage filled with pots, pans, silver plate, old china, a bunch of large keys, picklocks to the number of one hundred and fifty, and a favourite vessel in which he cooked his victuals, and which he called his *conjuror*. For some time he made use of an unpainted carriage, until a sudden freak induced him to order three female servants to paint it on Sunday, when he rode in it, although the paint was still wet. He mended the linings of his carriages, or rather he employed any passing fishwoman to do it, with the petticoats of his servants. Staircases became the objects of his aversion, for he thought them unsightly, and caused his own to be removed and substituted a ladder. Holes were made through the ceilings through which his servants were obliged to raise themselves into their rooms by ropes and pulleys. At last the presence of servants was intolerable to him, and he cut in two the door leading to his chamber, so as to form a bar over which they were never allowed to pass; his victuals being placed by them on a table inside, connected by a rope and pulleys, with that at which he was sitting. This description, much abbreviated from Collinson's "Lunacy," vol. i. p. 390, would probably suffice to satisfy most mental physicians of the present day, that the inquisition arrived at a sound conclusion in finding Jervoise insane, and yet the importance of the case in relation to eccentricity is extremely great, seeing that Lord Ellenborough and the jury regarded him as merely eccentric, and as possessed of testamentary capacity. A like verdict would probably have been given, had the case of the Hermit of Red-Coats Green ever come into a court of law.

A striking and painful peculiarity by which some persons are tormented is indecision of character. Individuals so affected pass through life totally unable to balance the favouring and opposing advantages of a particular course of action. Arrived at a conclusion after a long period of doubt and hesitation, they at once see powerful reasons on the other side. Again they waver and arrive at the opposite conclusion. Short, however, is the period of decision, and the same wearisome circle is traversed again and again

until life becomes a burden, and the individual an eccentric bore to his friends.

There are children who present marked peculiarities of character which continue until adult life, although they may be somewhat modified and assume different forms, according to the *entourage* in which they find themselves. A boy will grow up hyper-scrupulous in regard to the least, as well as the most important, matters of life. He is unhappy unless he thinks he has fulfilled to the letter the commands of his parents or teachers. He inquires again and again whether what he is doing or omitting to do is really in strict accordance with the orders he has received. He is nervous to a painful degree, and is in a constant fidget from morning to night, to the sore trial and irritation of his friends. He is, in short, a perfect worry. He has been brought up with great care, and with strictness without fanaticism. That the characteristics of such a youth are not the result of his education and training is proved by the fact that his brothers and sisters younger than himself and subjected to exactly the same conditions present totally opposite mental characteristics. In fact, it has been said as a joke that the former was born with a conscience, and the latter without one. At the same time, the latter are more healthily constituted than the former. It is noteworthy that this scrupulosity of character is associated with a great disregard for punctuality. Under circumstances in which it is of importance to catch the train, this individual will in all probability arrive too late at the station. There seems to be an inertia in his constitution which leads him to defer to the last moment packing up his things, and the more pressure is brought to bear upon him, the more irresolute does he become. If he must be regarded as peculiar or eccentric it has to be admitted, on the other hand, that he has good abilities, is an excellent classic, and quite able to fill a responsible position in life. He is quite competent to transact any business or make a will, although there is no doubt he would pass through an interminable series of mental questionings, and would take weeks to arrive at a conclusion when an ordinary mortal would not require as many days. Now, it would be altogether out of the question to regard such a man as insane, although if some of his peculiarities developed further and deprived him of the power to decide between two possible courses of action, he would pass into that form of mental disorder called "*folie du doute*" (*q.v.*). As it is, he illustrates one aspect of eccentricity,

constitutional, ineradicable, but not likely to increase; indeed, more likely to be modified by a knowledge of the world and friction with other minds healthier than his own.

We have known a clergyman who from childhood laboured under the mental defect of indecision, and who, becoming unsettled in regard to his benefice, contemplated a change, but spent sleepless nights and wearisome days in a state of mental see-saw, now rising to the decision to make the contemplated change, then falling into doubt and totally unable to take any action. When this wear-and-tear of mind had reached a climax, he consulted us. We heard all that he had to say in favour of and against changing his living, and when we found our patient in the mood to remain in the same locality, we supported him in the strongest possible manner in that conclusion. The next day he saw the advantage of leaving his post, and having done so, we again joined him in advocating the wisdom of his choice with the same success as before, but, alas! with the same short-lived victory over irresolution. The next day found this unhappy man reverting to the judgment which he had just abandoned. The result was a *non possumus*, and we lost sight of the patient. Several years afterwards it occurred to us to write a letter of inquiry to the clergyman as to whether he had ever made up his mind to change his location. After the interval of a few days we received a letter expressing the writer's gratitude for the kindly interest shown in his case, along with the statement that after many painful struggles he had at last removed to another town, but adding that he was doubtful whether he had pursued the right course.

Cases occur of eccentricity in old age which raise the question of insanity, and present considerable practical difficulty. It is no doubt all important to ascertain whether eccentricity has been a marked characteristic of the individual in previous years. Assuming that there has been no period of the man's life in which peculiarities of manner or habits of life have been absent, there will be ground for maintaining that there is a sufficient amount of mental power to admit of testamentary capacity. If, on the other hand, eccentric acts have recently developed themselves, some enfeeblement of the higher centres must be suspected.

Eccentricity, it must be remembered, may manifest itself in the two very opposite forms of the carelessness in the use of money which constitutes the spendthrift, and the passion for saving which

characterises the miser. As every one knows, many cases have occurred in which a fortune has been squandered by the eccentric conduct of its possessor in consequence of there being no legal evidence of his insanity. The recent Lunacy Act has endeavoured to grapple with this difficulty by allowing the spendthrift's control over his property to be restricted, while his personal liberty is not interfered with.

Prognosis.—Eccentricity may doubtless almost imperceptibly merge into insanity. At the same time, there is a form of innate peculiarity of character, to which the public gives the name of "having a screw loose," which presents no special liability to actual mental disorder. The chances are rather the other way as regards the individual himself, although in the next generation it may develop into madness. Dr. Parr went even further than this, and observed in regard to clever eccentric people that they were certainly cracked, but that the crack *let in light*. Perhaps Dr. Conolly was right in thinking this favourable view was rarely justified. Certainly it is true that very little light enters the crack in those fussy persons who have a craze for propounding endless plans for reducing the National Debt, who are continually scheming in one direction or another, and who bring out plausible patents which never end in practical results. (See EVIDENCE, LAW OF, IN ITS RELATION TO LUNACY.)

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ECCHYMOSIS. (See BRUISES.)

ECDEMOMANIA (ἐκδημος, away from home; *μανία*, madness). **ECDEMIONOSUS** (ἐκδημος, away from home; νόσος; a disease). Terms used for a form of insanity in which there is a morbid desire for travelling or wandering about. (Ger. *Reisesucht*.)

ECHOLALIA (ἠχώ, a sound or noise, an echo; *λαλία*, speech, talk); **ECHOPHRASIA** (ἠχώ, a sound; an echo; *φράσις*, speech, expression). Terms (the former employed by Romberg) for the disturbance of speech found in certain nervous disorders and in some insane persons, when the words and tones of the person addressing them are repeated or echoed. (Ger. *Echosprache*.)

ECHOPATHIES (ἠχώ, a sound, an echo; πάθος, a suffering). Forms of abnormal nervous action in which the patient spasmodically and quite involuntarily repeats on the spot words heard or actions seen by him.

ECHOS (ἦχος, a sound). A term for any noise or sound of a subjective nature in the ears.

ECHO-SIGN IN EPILEPTICS. A speech disturbance observed in epileptics, where some word is repeated two, three, or more times in succession, either in the middle or at the end of a sentence. It is usually a post-convulsive phenomenon observed in chronic epileptic demented. Romberg considered it as evidence of cerebral softening, but Echeverria regards it as the result of "perverted will," impaired or defective inhibition. It occurs also in the writings of the epileptic insane.

ECLACTISMA (ἐκλάκτισμα, a dance, in which the legs are thrown up behind; from ἐκλακτίζω, I kick out). A synonym of Epilepsy, from the involuntary struggles during a fit.

ECLAMPSIA (ἐκλάμπω, I shine or burst forth violently). A term generally applied to convulsions of an epileptiform character, due to some actual disturbance of the nervous centres, caused by anatomical lesion from injury or disease (differing thus from pure epilepsy), by a deficient supply of blood, by the introduction of poisonous matter into the blood (notably urea), or by reflex irritation (e.g., intestinal worms, teething, &c.). The term was formerly used as a designation for infantile and puerperal convulsions. (Fr. *éclampsie*; Ger. *Eklampsie*.)

ECLAMPSIA NUTANS (ἐκλάμπω; *nuto*, I nod the head). A name given to a rare disease observed in young children. It is characterised by a peculiar bowing forward and downward of the head, a bending or rotating of the head or body, or a rapid to-and-fro nodding. Its ætiology is doubtful, and most regard it merely as a development of ordinary infantile eclampsia.

ECLAMPSIC IDIOCY (ἐκλάμπω, I shine forth; *idios*, peculiar). (See IDIOCY.)

ECLIMIA (ἐκλιμία, excessive hunger). A synonym of Bulimia.

ECMNESIA (ἐκ, from; *μνήσις*, memory). A form of amnesia in which there is a normal memory of occurrences prior to a given date, with loss of memory of what happened for a certain time after that date.

ECNŒA (ἐκνοία, from ἐκ, out of; *νόος* (*νοῦς*), the mind). A term for any form of madness. Insanity.

ECPHRONIA (ἐκφρων, foolish, silly, insane). An old term for insanity. A genus of the order Phrenica, in which there is diseased perception with little derangement of the judgment, occasionally shifting into diseased judgment, with little derangement of the perception. (Mason Good.)

ECPHRONIA MANIA (ἐκφρων; *μανία*, madness). Madness; the discrepancy

between the perception and the judgment is general; great excitement of the mental, sometimes of the corporeal powers. (Mason Good.)

ECPHRONIA MELANCHOLIA (ἐκφρων; *μελαγχολία*, from μέλας *χολή*, black bile). Melancholia; the discrepancy between the perception and the judgment limited to a single object, or a few connected objects or trains of ideas; the will wayward and domineering. (Mason Good.)

ECPLEXIS (ἐκπλήσσω, I terrify or amaze). An old term used by Galen for stupor or consternation, the patient standing with open eyes and mouth, speechless and motionless. (Fr. *ecplexie*; Ger. *das Erstarren vor Schrecken*.)

ECSTASY (ἐκστασις).—**Definition.**—A word loosely and variously employed, but usually restricted to that condition of the system in which a person presents opposite phases of mental action, some faculties being exalted and others depressed; sensation and locomotion being suspended. It is so allied to catalepsy that the term "cataleptic ecstasy" is often employed: as also as that of "ecstatic trance." With ecstasy we always associate the idea of something more than immobility and the loss of objective consciousness, namely, the impassioned attitude of the patient, whether sitting or standing, the eyes being fixed and open, with or without utterances of a religious or enthusiastic character. The whole mind seems to be absorbed in and concentrated upon some grand idea, especially of a supernatural character. In this mental attitude, ignorant and astonished spectators read a divine illumination. The unearthly appearance of the patient (for a patient he or she is, if properly understood) naturally leads the credulous to attach authoritative importance to all that may be whispered or indicated by the ecstatic. Mystics in all ages have been more or less examples of this neurosis. The term ecstasy has been so differently employed by even medical writers that much confusion has been occasioned. The learned Prichard clearly defined the condition, and with the French employed the word as synonymous with trance. He contrasted it with the "day-dream," or reverie, which consists of a voluntary absorption in a certain train of ideas, not having a real character when remembered. The ecstatic, on the contrary, is impressed with the reality of scenes present to the mind in a state of trance, or at any rate it is very difficult to him, when he recalls it, to free himself from the hold which it has taken of his mind.*

* "A Treatise on Insanity and other Disorders

Examples.—Several remarkable cases are on record in which ecstatic subjects have passed, as it seemed to them, into the abodes of the blest, and have deplored the unhappy fate which restored them to conscious relations with the external world.

There is the case of John Engelbrecht, reported by Arnold, of Leicester, in the early part of the century. A few passages from this remarkable history should be preceded by his own statement that it was about 12 o'clock (midnight) when his bodily hearing failed him, and that when the watchman cried twelve o'clock, his ecstatic sleep commenced.

"It was on Thursday noon, about 12 o'clock, when I distinctly perceived that death was making his approaches upon me from the lower parts upwards; inso-much that my whole body becoming stiff, I had no more feeling left in my hands and feet, neither in any other part of my whole body; nor was I at last able to speak or see; for my mouth now becoming very stiff, I was no longer able to open it nor did I feel it any longer. My eyes also broke in my head in such a manner that I distinctly felt it. But, for all that, I understood what was said when they were praying by me; and I heard distinctly that they said to one another, 'Pray feel his legs, how stiff and cold they are become; it will now be soon over with him.' This I heard distinctly; but had no perception of their touch. And when the watchman cried eleven o'clock, at midnight, I heard that, too, distinctly; and much about twelve o'clock at midnight, the bodily hearing failed and left me too. Then was I (as it seemed to me) taken up with my whole body; and it was transported and carried away with far more swiftness than any arrow can fly when discharged from a cross-bow." He then, after some observations, relates what he saw and heard in the other world; and afterwards describing his return to life, and telling us that he was hours in dying, and the same space in recovering, he thus proceeds:—"Remarkable it is, that as I died from beneath upwards, so I revived again the contrary way, from above to beneath, or from top to toe:—Being now conveyed back again out of the splendid glory, it seemed to me as if I had been replaced with my whole body upon the same spot; and then I first began to hear again corporally something of what they were praying in the same room with me. Thus was my hearing the first of all the senses I recovered again. After this I began to have a per-affecting the Mind." By James Cowles Prichard, M.D., F.R.S. (London, 1835), p. 454.

ception of my eyes, so that by little and little my whole body became gradually strong and sprightly. And no sooner did I get a feeling of my legs and feet again, but I rose and stood up upon them with a strength and firmness I never had enjoyed before, through the whole course of my life. The heavenly joy invigorated me to such a degree, that the people were greatly terrified at it, seeing that, in so rapid and almost instantaneous a manner I had recovered my strength again to such great advantage." ("Observations on Insanity," 2nd edition, vol. i. p. 229.)

It may be added that Engelbrecht had been for many years greatly depressed in mind, with suicidal tendencies before passing into this trance. Ever after the attack he was free from despondency, and passed into a state marked by more or less religious exaltation. He was a visionary, some times fasted for weeks together, and once heard for one-and-forty nights the angels singing and playing sacred music.

Another instance of trance may be added. It is contained in the *Psychological Magazine*, vol. v. part 3, p. 15, and is given by Dr. Alex. Crichton in his "Inquiry into the Nature and Origin of Mental Derangement," vol. ii. p. 87:—

"A young lady, an attendant on the premises of —, after having been confined to her bed for a great length of time, with a violent nervous disorder, was at last, to all appearance, deprived of life. Her lips were quite pale, her face resembled the countenance of a dead person, and her body grew cold. She was removed from the room in which she died, and laid in a coffin, and the day of the funeral was fixed on. The day arrived, and according to the custom of the country, funeral songs and hymns were sung before the door. Just as the people were about to nail on the lid of the coffin, a kind of perspiration was observed to appear on the surface of her body. It grew greater every moment, and at last a kind of convulsive motion was observed in the hands and feet of the corpse. A few minutes after, during which time fresh signs of returning life appeared, she at once opened her eyes, and uttered a most pitiable shriek. Physicians were quickly procured, and in the course of a few days she was considerably restored, and is probably alive at this day.

"The description which she herself gave of her situation is extremely remarkable, and forms a curious and authentic addition to psychology.

"She said, it seemed to her, as if in a dream, that she was really dead; yet she was perfectly conscious of all that happened around her in this dreadful state. She

distinctly heard her friends speaking and lamenting her death at the side of her coffin. She felt them pull on the dead-clothes, and lay her in them. This feeling produced a mental anxiety which is indescribable. She tried to cry, but her soul was without power, and could not act on her body. She had the contradictory feeling as if she were in her own body, and yet not in it, at one and the same time. It was equally impossible for her to stretch out her arm, or to open her eyes, or to cry, although she continually endeavoured to do so. The internal anguish of her mind was, however, at its utmost height when the funeral hymns began to be sung, and when the lid of the coffin was about to be nailed on. The thought that she was to be buried alive was the first one which gave activity to her soul, and caused it to operate on her corporeal frame."

Treatment.—As the causes of this abnormal condition are mostly moral, the first step in treatment is to remove them, and ensure healthy surroundings. It is needless to say that any encouragement of the love of notoriety, which is present in many cases, must be sedulously avoided. The possibility of imposture must be carefully considered before making a diagnosis. Of physical causes the most probable is uterine disorder, to remove which will be the care of the physician. Hysteria so frequently plays a part in this affection, that the moral and physical treatment required for it, is likely to be the one called for in cases of ecstasy. Fasting girls usually belong to this category. (See EPIDEMIC INSANITY, HYSTERIA, TRANCE.)

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EDUCATION OF THE INSANE.

(See SCHOOLS IN ASYLUMS.)

EDUCATIONAL TRAINING OF IDIOTS AND IMBECILES. (See IDIOTS AND IMBECILES.)

EFFLEURAGE (Fr. *effleurer*, to touch slightly). The form of massage in which gentle shampooing or rubbing of the surface is employed. (See MASSAGE.)

EGERSIS (*ἐγερσις*, a waking). Intense wakefulness.

EGOISM (Lat. *ego*, I). An excessive or passionate love or opinion of self; the habit of referring everything to one's self, and of judging and estimating everything by its relation to one's interest or importance. The totality of the tendencies or instincts which direct the acts of the individual to be performed with a view to his own advantage or pleasure. The mental state opposed to that termed altruism by Comte. (Ger. *Eigennutz*, *Selbtsucht*.)

EGREGORSIS (*ἐγρηγορσις*, watchfulness). A morbid condition of wakefulness.

ELECTRICITY, Use of, in the Treatment of the Insane.—Historical Sketch.

—Ever since electricity, in whatever form it may be, has been used for medical purposes, it has also been applied to the treatment of mental disorders. It was, however, not in the first instance applied to them, for at the time when electricity was first introduced into therapeutics, little was known of insanity, so that only its most severe forms were recognised as such; but we find it applied very early to affections of which we know, that they stand in close relation to insanity, whether they precede or accompany it, or represent its characteristic features. De Haen assures us at the end of the fourth decade of the last century that electricity, especially in the form of the Leyden jar, had been of great service to him in the treatment of chorea and partial paralysis accompanied by tremor, and Sir Thomas Watson not only states the same, but also reports the beneficial influence of electricity on trismus and tetanus. Not long after, it was recommended by Evans for hysterical convulsions, by John Wesley for epilepsy, by Lovel, Mauduyt de la Varenne and John Birch for disordered menstruation, amaurosis and neuralgia; by Paets van Trostwyk and Krayenhof for certain forms of apoplexy, and Preston and Hartmann made it a rule *not to apply too strong shocks, because the nerve power, already weakened, might suffer serious harm*. In 1750, supported by these statements and his own observations, Tiberio Cavallo gave a series of indications and modifications with regard to electric treatment, which he specially recommends for paralysis, weakness of sight and of hearing, rheumatism, glandular swellings and more especially for chorea and epilepsy.

After Galvani had discovered (in 1789) the contact-electricity, and Volta had in 1800 made known his galvanic pile and thereby facilitated the use of the electric fluid, as it was then termed, electricity became very generally used in the treatment of disease, and the most manifold morbid conditions were treated by it in the form of galvanism. On the whole, however, as Fr. L. Augustin states (*Versuch einer vollstaendigen systematischen Geschichte der galvanischen Electricitaet* u. s. w. Berlin, 1803, p. 53, ff.), only such conditions were subjected to electric (galvanic) treatment as consisted in a decrease of nervous action, and were not caused by deeper changes. To express it in modern terms, electricity was applied only for functional and not (so-called) organic diseases. Still, now, electro-therapeutics are specially applied

to the so-called functional disorders, which are caused by mere molecular changes of the tissues and therefore might well be termed molecular diseases, whilst the treatment of organic disease developed from the former, and consisting in deeper and mostly irreparable changes of form and character of the tissues, has as yet not given any at least undoubted results. Already in the early time mentioned above they experienced as C. J. C. Grapengiesser tells us (*Versuche den Galvanismus zur Heilung einiger Krankheiten anzuwenden*, Berlin, 1801, p. 101), *that galvanism is a very good sedative, and that most of his patients applying it in the right measure slept very well after it*; and Augustin says that medical men, who want to advance their science, should apply galvanism in functional diseases, and thus they would be able to *palliate or even to cure most severe cases of that kind*.

From that very time have come the first reports, that electricity, especially galvanism, is able to remove mental derangement. Ch. Henric. Ernest Bischoff (*Commentatio de usu galvanismi in arte medicâ*, Jena, 1801) relates that a hysterical woman suffering from paralysis and slight melancholy and stuporous to a high degree had been completely cured by galvanism. Augustin reports that a boy suffering from cataleptic attacks in consequence of ague, paralysed in arms and legs, and also of deranged mind, after being galvanised daily for three weeks, not only was cured from paralysis, but also had become much quicker in mind; and Jean Aldini (*Étude théorique et expérimentale sur le Galvanisme*, Paris, 1804) reports two cases of melancholia, which he cured by galvanism; his report is confirmed by Gentili, Palazzi, Brugnatelli and Zola.

Subsequently to the year 1804 the zeal for electro-therapeutic treatment, as also for mental affections in general, greatly relaxed. The often marvellous success of electric treatment had led to a most uncritical application of electricity in medicine. Quacks and unscrupulous charlatans abused the credulity of the masses. Thus we do not hear anything for half a century of the application of electricity in medicine, in spite of the efforts of Most, Sarlandière, Magendie, Friedlander, Reinhold, James, and Purkinje to revive the lost interest.

The induction current was discovered by Faraday in 1831, and Duchenne published at the end of the fourth and the beginning of the fifth decade, the good results obtained by means of it in the treatment of disease. Further, Du Bois-Reymond pub-

lished in 1848 and 1849 his famous *Untersuchungen über die thierische Electricität* (*Investigations on Animal Electricity*). Several physicians of note took the matter in hand; Moritz Meyer contributed to make it known to the medical world at large by his book, *Electricität in ihrer Anwendung auf praktische Medizin* (Berlin, 1854) (*Electricity applied in Practical Medicine*); In 1855 Remak laid down certain principles for its application, and from that time electro-therapeutics became from year to year better known and appreciated.

At this time also we again find attempts to galvanise insane persons, and to bring about a cure by electric treatment. Bucknill was, according to a notice in the "*Annal. Médico-Psychol.*," 1849, vol. i. p. 228, one of the first, if not the first, who, after a long pause, applied electricity in the direction indicated, and in some melancholiacs actually had good results. But principally two physicians, Teilleux and Auzouy, have attempted to give electricity a prominent place in psychiatry. In 1859 they published in the "*Ann. Médico-Psychol.*," vol. ii. (J. Teilleux, "*De l'application de l'électricité au traitement de l'Aliénation mentale*," p. 353. and Th. Auzouy, "*Des troubles fonctionnels de la Peau et de l'action de l'électricité chez les Aliénés*," p. 527) their observations, and also the principles according to which in future insane persons would have to be treated by electricity.

Teilleux thinks it of no matter for the treatment whether the electric current be produced by friction, contact, magnetism, or induction. The electric current is a powerful and efficient means for curing mental derangement, and although no specific, nevertheless is a valuable adjuvant. It possesses decidedly stimulating powers, and should be applied in all those cases in which the derangement is connected with anæsthesia, loss of tone, and cerebral exhaustion, because it is certainly to be hoped that the aboulia and depression caused thereby may be cured. The electric current has besides a soothing effect, and may under certain circumstances be used as a sedative. Voltaic electricity, he says, has a special power, and therefore is fit to be applied to a series of psychoses, because it stimulates the nerves, at the same time soothing and diminishing bodily excitement if properly applied.

Auzouy considers a series of peripheral affections of insane persons not so much as complications, but as symptoms of existing cerebral disease, and attributes to them great importance in the

origin and the existence of actual psychoses.

In 1868, Benedikt ("Electrotherapie," Wien, 1868) published some cases, in which electricity had been undoubtedly of great use in bringing about cure or improvement of mental derangements. In 1869, the investigations of Lombroso were published (C. Lombroso, "Klinische Beitræge zur Psychiatrie," Deutsch von M. O. Fraenkel, Leipzig, 1869, pp 29-43), according to which sensibility was found to be diminished in apathetic melancholia, the reverse in active melancholia, in which sometimes hyperæsthesia, especially on the forehead, may exist. According to these investigations the extensor muscles in persons suffering from dementia, pellagra, or monomania, react more slowly than in healthy individuals, and the action of the heart is always accelerated on the application of induction currents.

Personal Investigation.—Since 1867, we ourselves have taken part in the investigations on the influence of electricity on insane persons, particularly with regard to the question how far electricity might be useful in the cure of insanity. We were able to confirm in general the statements of Teilleux and Auzouy. Every electric current, however excited, of whatever quality, is calculated to remove mental disorders. But not every current is capable of removing every mental derangement. On the contrary, it may aggravate some forms and even make them incurable. The electric current is a two-edged sword. We therefore thought it our first task to find out under what circumstances, in what form and manner it would have to be applied in a given case.

Results and Directions.—We shall in the following remarks give the results we have obtained after many years' researches. Electricity is an excellent remedy in the treatment of insanity, but it has to be applied with care and perseverance; it is a stimulant, and the biological principle, that weak stimulants excite vital action, medium ones promote it, strong ones hinder it, and very strong ones extinguish it, finds here complete confirmation. It depends, however, upon the individual what to understand by a strong and what by a weak stimulant; some stimulants will be very strong for a weak and susceptible individual, which for a strong one would be weak; even so much so that its effect would scarcely be felt. As insane persons are mostly weak or even decrepit, it follows that we generally have to apply weak, *i.e.*, relatively weak, currents, which in a particular case might be felt to be strong. There are

individuals who suffer from so-called *neurosis electrica* and are so sensitive to electricity, that they are intolerably affected by electric currents, which are not at all felt by an average individual, and also influence a very sensitive galvanometer but little. It is therefore usually advisable to operate with relatively weak currents only, which produce but a slight deviation of the needle of the galvanometer, because these give, according to our experience, much better results than stronger ones; and it is also necessary never to galvanise in unfamiliar cases without a galvanometer, because otherwise mistakes will be unavoidable. We must not, however, rely on the galvanometer and the deviation of the needle only, but take into consideration the subjective sensation of the patient; he has to be conscientiously observed, the effect of the current, of which perhaps he complains, has to be tried on ourselves and the strength of the current regulated accordingly. No galvanometer, although it is indispensable, can take the place of the eyes, skin, or tongue of the operator. Although in general electric currents applied therapeutically must be weak, a certain strength is nevertheless necessary. They must at least be felt subjectively, even if they cannot be measured objectively. Although we agree with most authorities on the subject of the comparative strength of the electric currents, we do not agree with them in regard to the duration necessary in its application. Most medical men are for the short duration of the application, from a few seconds to two minutes; we are of a different opinion. According to our experience, the duration of an application must be inversely proportional to its strength. The non-observation of this rule is, in our opinion, the principal reason why there have been in the treatment of insanity by electricity so few good and so many bad results, and why in consequence electro-therapeutics have not found here the place they deserve according to Hitzig and Schuele.

A certain strength corresponding to the conditions present is necessary, if the stimulation which represents motion, shall have effect—*i.e.*, cause motion. If the stimulation is very slight, it can have this effect only, if it is accumulated, and this takes place if we apply it for some time. If nevertheless several medical men maintain to have had good results on application of weak currents of short duration, it may be due to the fact that the many neuropathic or hysterical individuals who undergo electric treatment are also amen-

able to suggestion. Inasmuch as insane patients, on account of their being occupied with one or a few exciting ideas (melancholiacs) or with many (maniacs), are unable to direct their attention to any other subject, they are not so fit to be treated successfully by suggestion, and this is the reason that the experience of medical men, gained in ordinary individuals, is not confirmed in the insane. These medical men, however, require for success frequent *séances*, two or even three every day. They try to attain by repetition what they do not attain by short periods; but repeated short periods are nothing but a long period interrupted. The difference of opinion, therefore, between these physicians and ourselves is not so great as might at first appear. However this may be, we may in the science of mental disease expect good results only from long-continued currents. Of course the weaker the current is, the longer it should be applied. We have sometimes galvanised patients for twenty or even thirty minutes.

For this, however, great care, patience and confidence are required, qualities only found in a man convinced of the final effect of his treatment. Mere attendants, nurses or assistants who simply do what they are told, and because it is their duty, will never have the success of a medical man convinced of the efficiency of electricity. We have cured patients who had been treated in vain elsewhere. In any case we must not give up the treatment too early, although the well-known saying of Remak, that electricity generally helps only where it acts soon, is still true. Cases are on record in which the effect of the electric treatment became visible only after weeks, and in which it had to be applied again from time to time, until at last after many months the patients recovered, or at least became decidedly better.

The effect of the constant current on man is like that of smooth water, or water in a bath; that of the induced current is like that of a douche. Therefore where a bath or packing in a wet sheet is indicated, the constant current must be applied; where a douche or cold friction is indicated, the induced currents are of great use. The simple interrupted current holds a middle position, and is indicated where a bath with cold irrigations and showers is deemed necessary. Where it is intended that a change shall be produced in nutrition, the constant current must be applied; if at the same time we want to excite, we have the more or less often interrupted current;

and if we want to excite in the first instance, and pretty strongly, the induced current is in its place.

The constant current mostly produced by galvanic batteries is called galvanic current; the alternating current, generally produced by magnetism or induction, is called magneto-electric or induction current; the latter is also called according to its discoverer, faradic current. If we apply galvanic currents, we galvanise; if faradic currents we faradise. Galvanisation and faradisation are therefore the principal ways of applying electricity in medicine as well as in mental diseases. Lately, through Holtz's machine, use has also been made of frictional electricity, the so-called franklinism; they have franklinised, but not with such success that we can speak about it with the same certainty as about galvanisation and faradisation. We shall therefore speak only of the two latter with regard to their application in mental diseases, and shall but slightly touch on franklinism.

Du Bois-Reymond has found, that if a nerve is traversed by a galvanic current, its normal excitability is altered, and he called this change electrotonus. Pflueger has since shown that electrotonus is different if produced by the influence of the positive pole, the anode, or by the negative pole, the cathode; he has therefore called these two different phases of electrotonus, anelectrotonus and catelectrotonus. Anelectrotonus is characterised by a diminution, catelectrotonus by an increase of the normal excitability. The anode therefore acts as a sedative, the cathode as a stimulant. On this difference of effect between the two electrodes, the *polar method* is founded.

E. Pflueger ("Untersuchungen ueber die Physiologie des Electrotonus," Berlin, 1859) has also found that the peculiar effect of the electrodes is not confined only to the intra-polar piece of nerve, but extends also to the extra-polar piece. In other words, the action of the current extends to parts of the body placed beyond the portion included between the two electrodes, though the chief anodic and cathodic effects are localised between the points of contact.

Pflueger has also shown that the conductivity of an electrified nerve is lessened in anelectrotonus, and that this anelectrotonic arrest of conductivity increases in intensity and extension with the strength and duration of the current applied; so that with strong and long lasting currents anelectrotonus is specially developed, and at last affects alone the whole intra-polar piece of the nerve. Applied to the *polar*

method this means that with the strength and duration of the currents the anode acts pre-eminently and at last alone; this may be, partly at least, connected with the so-called cumulative effect which becomes manifest with the true application of the current. As Rockwell ("The Cumulative Action of the Galvanic Current," *The Medical Record*, April 21, 1888) points out, this has an extremely soothing influence on exaggerated nerve action. Therefore if we want to apply the soothing action of the constant galvanic current, we have to apply the anode, have to use strong, or what is still safer, gradually increasing currents; have to apply them for a longer time, for some minutes; and have to avoid any sudden interruption. If we want to use the exciting action of the current we have to apply the cathode, and have frequently to interrupt the current or to change its direction by means of a current-breaker and commutator.

It is the very short duration of induced currents which does not allow of any deeper effects taking place. In their case the poles alternate every moment with the change of direction of the current. If one pole, as we see in faradisation, acts more strongly than the other, it is because the induced current produced by the break of the inducing current and going in the same direction, is stronger than that current produced by the making of the inducing current and going in the opposite direction. It is desirable, if we want less mechanical action but rather molecular effects, as in galvanising, that we should apply as broad electrodes as possible, from 1 square inch to 24 or more, but if we want a mere mechanical effect we should use fine electrodes, such as the faradic brush.

Treatment.—The first principle in electrotherapeutics is to send the current through the *locus morbi*, or rather to bring the *locus morbi* under the influence of that electrode, the effect of which is desired. Which is the *locus morbi* in mental derangements? Generally the cerebrum is considered the *locus morbi*, which is usually held to be the psychical organ as such, and rightly so to a certain degree. It is not absolutely correct to speak of "mental and cerebral diseases," as is generally done, because mental processes are not the product of the work of the cerebrum alone, but of the whole body, of the whole person, and especially of the nerves and senses in the widest sense of the word. Every cerebral disease leads to mental disease, although the latter is often not recognised; but not every mental disease

is caused by cerebral disease. If the brain is weak, incapable of resistance and unstable in its molecular composition, every bodily excitation will, as common experience tells us, lead to the outbreak of mental derangement. Transitory phenomena are caused by similar conditions. Any sufficiently strong irritation of such a brain will cause an outbreak of mental derangement, so that the latter may be considered an expression of all the circumstances mentioned before. The so-called reflex-psychozes, caused by disease of the reproductive organs, of the intestinal canal, and of the lungs; by mastitis, periostitis, &c., prove this sufficiently. For they disappear, if not of long standing, after the respective diseases have been cured.

It is therefore important first to make a correct diagnosis with regard to the causes of the mental derangement, and to consider the derangement itself before taking the appropriate measures. In all cases in which the mental disease is an expression of severe organic changes of the cerebrum and its parts, as, e.g., in progressive paralysis, if it comes under medical treatment after profound vascular changes, tissue proliferation, and atrophy of nerves have taken place, nothing is to be expected from electricity. For the electric current is not able to remove organic changes, atheromatous degeneration of the vessels, induration of the membranes, shrinking of the convolutions, &c.; its use is limited to functional or molecular derangements, which find their expression in increased or decreased excitability, in erethism or torpor. Electrical treatment must therefore be confined to cases where we want to moderate abnormally increased, or to increase abnormally decreased, mental action, and perhaps to rectify mental action which has taken the wrong course. Electricity may also be of occasional use in some incurable derangements, and to suppress certain troublesome symptoms, which mostly consist in exaggerated excitability.

In the majority of mental diseases we have to deal with conditions of over-excitability. The conditions of mental depression, melancholia, even a kind of stupor—stupor caused by inhibition, or *stupor spasticus* as we have named it—are nothing but the expression of such conditions of excitability; the same is the case in furor and mania. In paretic or paralytic stupor, however, we have, as the name already tells us, a condition of paralysis, of decreased excitability.

If we want to apply electricity as a sedative, we have to use the galvanic current and its anode. If the mental

derangement is the expression of derangement of general nutrition, in which the usual treatment consists in rest, strengthening diet and tonics, electrification of the whole body, so-called general galvanisation is indicated. The anode is placed on the back of the head, the cathode on the extremities in form of a footbath, metal plates, or sponges. The current descends from the head to the feet. The head—*i.e.*, the psychical organ—comes in this way under the effect of the anode, and according to the theory already mentioned, the whole body comes at last under its influence. In this manner of electrification the anode has usually the form of a disc, or is double, so as to be applied simultaneously on both sides of the head or neck. We have to be careful not to change suddenly the strength or the direction of the current, which is to be very gradually increased up to the required strength, allowed to flow for the required time, and finally removed by gradual diminution of the number of cells in circuit.

If however we want to excite generally, and if the stimulation must at first be slight only, we place the anode at the feet and move the single or double cathode gradually up and down over the whole surface of the body, and frequently interrupt the current or change its direction. If the excitation has to be stronger, and has chiefly to combat a more or less marked cutaneous anæsthesia or muscular atony—both conditions found in paresis and stupor—we apply faradisation. We brush the whole surface of the body gradually with both electrodes in the form of wet sponges or of the faradic brush.

If we are convinced in these cases that the mental derangement, although the expression of a general disease, is principally caused by local irritation, as in consequence of neuralgia, a local treatment directed especially to neuralgia, is indicated besides the general treatment. To suppress neuralgia, we apply the anode over the painful nerve; the cathode as the so-called indifferent electrode, is placed far away from it on chest, thigh, arm, &c. We act in the same manner in hyperæsthetic paræsthesiæ. If however paræsthesia is already an expression of hypæsthesia, we should apply the cathode, and the anode takes the place of the indifferent electrode. In that case we may also apply faradisation, and as it seems, franklinisation. Hallucinations have to be counted among the paræsthesiæ. Galvanisation has proved successful in cases of auditory hallucinations of melan-

choliacs, in whom they are local manifestations of a general condition of irritable weakness; the anode is to be placed here on the mastoid process. In paranoiacs, however, in whom the auditory hallucinations are, so to speak, the cause of paranoia, galvanisation has no effect whatever.

There are sometimes in the course of mental derangements conditions requiring special treatment, as venous engorgements in the lower parts, the extremities, especially in the hands and feet. They are found in cases of paretic stupor, and are probably caused by paresis of the walls of the vessels, and of the heart; and improve strikingly when treated by, interrupted, or by *labile* ascending galvanic currents (cathode on the neck or shoulder) by faradisation, and perhaps also by franklinisation. To these conditions belongs also obstinate costiveness in patients suffering from melancholia or spastic stupor, caused by irritation of the central organs of the nervous system, in consequence of which the peristaltic movements are inhibited, whilst the intestinal absorption is increased. *Stabile* descending galvanic currents, the anode on head, neck, or back are very useful. Insomnia is one of the most unpleasant symptoms connected with this subject. The *stabile* descending galvanic current, the anode placed on the head, sometimes instantaneously produces the long wanted sleep. According to R. Lewandowski franklinisation has the same effect. It must be mentioned here that such good effects are also observed when the derangement is caused by deeper organic changes, and that electrification promotes the action of the bowels, and induces sleep also, in patients with general progressive paralysis, and other structural nerve alterations.

Other conditions may be treated by electricity which are not directly connected with the psychical derangement, *e.g.*, some paralysees, as facial paralysis, blepharospasm, and *tic convulsif*. These conditions are treated according to the rules of general electrotherapeutics, and in the light of the principles just expounded.

RUDOLF ARNDT.

N.B.—By “*stabile*” and “*labile*” currents are understood the two different methods of galvanisation—(1) by holding the active electrode fixed to the same spot; (2) by moving it up and down over the body-surface to be influenced.

[References.—For the clinical part: Electrotherapeutics, by Prof. W. Erb; Ziemssen's Handbook of General Therapeutics, vol. vi., London, 1887. For the physical principles chiefly: Medical Electricity, by A. de Wateville, London, 1884.]

EMERGENCY CERTIFICATES.
(See URGENCY CERTIFICATE.)

EMETOMANIA (ἔμετος, sickness; *μανία*, madness). The insane longing or rage for emetics or vomiting. (Ger. *Brechwuth*.)

EMOTIONAL (*emotus*, part. of *emoveo*, I move away.) Relating to, or characterised by, or attended with, emotion. A term applied to the mental condition in which joy, fear, grief, hatred, astonishment and other emotions are easily evoked by wholly inadequate or imaginary causes.

EMOTIONAL INSANITY. (See MORAL INSANITY.)

EMOTIONAL PARÆSTHESIA. (See PARÆSTHESIA, EMOTIONAL.)

EMPATHEMA (ἐμπαθής, moved with affection or passion). A term for ungovernable passion. In Good's "Nosology" applied to a genus of disease characterised by perversion or overpowering of the judgment by the force of some predominant passion, the features of the countenance being changed from their common character.

EMPATHEMA ATONICUM (ἐμπαθής; *ἀ*, neg.; *τόνος*, tone). Impassioned depression; the predominant passion accompanied by diminished excitement, anxiety and love of solitude; eye fixed and pensive, countenance pale and furrowed. (Mason Good.)

EMPATHEMA ENTONICUM (ἐμπαθής; ἔντονος, strained). Impassioned excitement; the predominant passion accompanied by increased excitement, ardour, and activity; eye quick and daring; countenance flushed and tumid. (Mason Good.)

EMPATHEMA INANĒ (ἐμπαθής; *inanis*, empty). Harebrained passion; wayward and unmeaning passion urging to indiscriminate acts of violence; air hurried and tumultuous; countenance flushed; eyes glaring and prominent. (Mason Good.)

EMPORTEMENT MANIAQUE (Fr.). A term for the ungovernable passion, the simple instinctive fury or excitement, called up by the slightest provocation.

EMPORTEMENT SANS DÉLIRE (Fr.). One form of moral insanity (Pinel).

EMPRESIOMANIA, EMPRESOMANIA (ἐμπρησμός, or ἐμπρησις, a conflagration; *μανία*, madness). Mania with an irresistible impulse to set things on fire. A synonym of Pyromania. (Fr. *empresomanie*; Ger. *Feuerwuth*.)

ENCATALEPSIS (ἐν, in; καταλαμβάνω, I seize). An old term used by Hippocrates (ἐγκατάληψις), "Epid." vi. s. 2. t. 12, in the same sense as Catalepsy.

ENCEPHALONARCOSIS (ἐγκέφαλος, the brain; *ναρκόω*, I benumb). Stupor

from some gross affection of the brain.

ENCEPHALOPATHIA (ἐγκέφαλος, the brain; πάθος, suffering). Disease of the brain in general, any brain affection, and so occasionally applied to insanity.

ENCEPHALOPATHIA LITERATORUM (ἐγκέφαλος; πάθος; *literator*, a teacher of letters). Mental affection induced by over-study.

ENCEPHALOPATHIA PUERPERALIS (ἐγκέφαλος; πάθος; *puerperium*, child-birth). A synonym of Puerperal Insanity.

ENCEPHALOPATHIA SATURNINA (ἐγκέφαλος; πάθος; *Saturnus*, an old name for lead). The brain affection produced by chronic lead poisoning; besides the normal functional disturbances, such as disturbed sleep, squinting, delirium, coma, &c., there have been observed attacks of acute mania, melancholia, epileptic insanity, and, according to Rayner, true general paralysis. (See LEAD POISONING AND INSANITY; INSANITY, SATURNINE.)

ENDEMIC INSANITY. (See EPIDEMIC INSANITY.)

ENERGUMENS.—Ἐνεργέω, to work in. Ἐνεργοῦμαι, to be under an active influence; in ecclesiastical writings, said of the active working of a *δαίμων*, or spirit = *δαίμονίζομαι*. Hence, Ἐνεργούμενοι were men operated on by demons.

In the early Christian Church there were special regulations with regard to the energumens: they were placed as a separate class under the special care of the exorcists. They were prohibited from joining in some acts of worship. If a catechumen became insane during his term of probation, he was regarded as a person possessed of an evil spirit, and was therefore not admitted to baptism, until he recovered. An exception was made, if at the point of death. Energumens were altogether excluded from church during a severe attack of their malady; and were obliged to remain in the *exedrae*, or even in the "area" of the church. Hence they were termed *χειμαζοντες*, or *χειμαζόμενοι*, "exposed to the cold." As they recovered they were allowed to attend public worship, the Lord's Supper not being administered, unless they were perfectly sane. As in the case of baptism, this prohibition was relaxed, if the patient was believed to be at the point of death.

Exorcism was practised—a ceremony not confined to the clergy. About the latter end of the third century, exorcists constituted a distinct order. Their appointment is thus described in the fourth Council of Carthage:—"When an exorcist is ordained, he shall receive at the hands

of the bishop a book, wherein the forms of exorcising are written ; the bishop saying, 'Receive thou these, and commit them to memory, and have thou power to lay hands upon energumens, whether they be baptised, or only catechumens.' " A prayer for the energumens commences as follows:—"Pray, ye who are possessed with evil spirits! Let us all earnestly pray on their behalf, that the merciful God, through Christ, would drive away the unclean and evil spirits, and deliver his pious suppliants from the power of the enemy—"Intrudes"—may He who drove out a legion of evil spirits and the wicked one, now drive away these apostate spirits, and deliver His creatures from the power of the wicked one, and purify those whom He has wonderfully made. Let us continue earnestly to pray for them. Deliver them and raise them up by thy power, O God! Bow down, ye possessed, and receive the blessing!"

After prayer was offered over the energumens in a special form, they were ordered to depart.—*Const. Apost. lib. viii. cc. 6, 7.*)

Allusions are made to this formula in Chrysostom: *Hom. 18, in 2 Ep. ad Cor.* ; *Hom. 3, 4, de Incomprehens. Nat. Dei* ; *Hom. 71, in Matt.* ; and other places.

In the early Christian Church there was a difference of opinion as to whether idiots should be baptised. It appears to have been the practice to abstain from the administration of the rite until there was sufficient evidence of mental health.—*Cf. Riddle's "Christian Antiquities."*

"It might have seemed, looking at the matter from the modern scientific standpoint, as if the Christian Church had itself got into a hopelessly long groove from which no good results were to be expected, which tended to stereotype the delusions that fed the madness, and were utterly at variance with any rational treatment. It will be found, however, it is believed, that partly in spite of this theory, partly in consequence of it, the treatment of the insane in the early ages of the Church assumed before long a true therapeutic character, and brought them under influences which tended, in the natural course of things, to bring them to a sound mind. . . . We have to think of the Energumens as brought, by virtue of the theory, within the range of sympathy and care. . . . The Church itself became a kind of home for those who otherwise would have been homeless. Then the exorcists paid them a daily visit, and gave them food, and laid their hands upon them (4 C. Carth. c. 90, 92). Then they were employed in industrial tasks

that were suited to their condition, such as sweeping the pavement of the Church."

The Rev. E. H. Plumptree, from whose article in Smith's "Dictionary of Christian Antiquities" this passage is taken, suggests that the ceremonial imposition of hands not only soothed the paroxysms of suicidal remorse, but exercised a mesmeric effect, calming the over-excited brain into something like tranquillity (vol. i. p. 554).

THE EDITOR.

ENFEEBLEMENT, MENTAL.—A general weakening of the mental power, comprising usually a lack of reasoning capacity, a diminution of feeling, a lessened volitional and inhibitory power, a failure of memory, and a want of attention, interest and curiosity in a person who had those mental qualities and has lost them, or has come to the age to have them, and they have not been developed. (Clouston).

ENGLISH MALADY.—A synonym of Hypochondriasis.

ENOMANIA (a contraction of *Enoinomania*, from *έν*, in the power of ; *οίνος*, wine ; *μανία*, madness). A synonym of Delirium Tremens.

ENOSOMANIA (*έννοσις*, agitation ; *μανία*, madness). A form of insanity in which the patient believes himself to have committed unpardonable crimes.

ENTHEOMANIA (*ένθεος*, inspired or possessed ; *μανία*, madness). A term for religious or fanatical mania or demonomania. (Fr. *enthéomanie* ; Ger. *religiöser Wahnsinn*.)

ENTHUSIASM (*ένθουσιάζω*, I am inspired). An old term for the delirious raving of those "possessed." (Fr. *enthousiasme* ; Ger. *Enthusiasmus, Begeisterung*.) (See ANTENEASMUS, DEMONICAL POSSESSION, &c.)

ENTONIA (*έντονια*, tension). Tonic spasm.

EPANALEPSIS (*έπανάληψις*, a repetition, regaining). A term formerly used as a synonym of Analepsia (*q.v.*)

EPHEMERAL MANIA (*έφήμερος*, short-lived, lasting only a day ; *μανία*, madness). A short attack of Mania.

EPHIALTES (*έφιάλτης*, from *έφάλλομαι*, (I leap upon). A name given for what is popularly known as nightmare. A state of acute mental distress occurring during sleep, preceded by some fearful dream. (Fr. *éphialte* ; Ger. *Alpdrücken*.) (See NIGHTMARE ; DREAMING.)

EPHIALTES HYPOCHONDRIACA *έφάλλομαι* ; *ύποχονδριακός*, affected in the hypochondria). **EPHIALTES VIGILANTUM** (*έφάλλομαι* ; *vigilans*, wakeful). Synonyms of the condition known as Daymare (*q.v.*)

EPIDEMIC INSANITY.—Ethnological Evolution of Mental Aberration.

—It is impossible to treat the history of epidemic insanity among men without a glance at the mythology of different races. Indeed, in the first origin of humanity when different lineage influenced its separation and organisation into races and tribes, it may be alleged that the study of psychopathic manifestations is of more importance than that of superstitious fables. These two elements are, however, not altogether separable at an early period, though possible later on.

From this fact an important consequence arises out of the study of the philosophy of history regarded from the standpoint of human psychology—viz., that the psychopathic manifestations of races are derived from the physiological inheritance of the varied embryonic conditions of physical life.

Absurd fables and exaggerated speculative conceptions indissolubly intermingled, from the desire to understand and explain phenomena, without the guide of wisdom and experience, in accordance with the normal psychical states of daily life, lie at the root, the original thought of humanity. From this root, on which vegetated the civilisations of the great peoples of the world, the Chaldeans, Egyptians, Indians, and Israelites, springs the division of labour of human thought. There was, so to speak, the physiological blemish of human infancy. Humanity deviated psychically—that is to say, error was psychological and normal. We must not, therefore, regard as mad the multitudes who were carried away, and who abandoned themselves in good faith to fantastic acts and mysticism. We do not assert, however, that no insane person, relative to that epoch, existed.

We repeat that the germs of insanity found in the early ages were physiological germs. These degenerated, and made their appearance in the later inhabitants of the globe, when the shades of mysticism were dissipated, and psychic life began to throw off absolute errors, while preserving some remains of a past epoch.

Insanity does not, however, entirely admit of explanations in this wise. It is quite possible that to the anachronistic remnants of an antiquated but physiological mental state we have superadded, to make the fruitful tree of insanity vegetate, the actually morbid manifestations which, united to the physiological rudiments with the compound interest of heredity, have tended to preserve and enrich the sad patrimony of mental disease through the ages.

Were this not true, cases of madness would now through the operation of the law of selection, the correction of error and the blessings of civilisation, have become rare, if not obsolete. Instead of this, mental derangement is, according to most writers, favoured by civilisation, and comparatively unknown among savage tribes.

Some of the leaders of our race, in its very early history, illustrate the theory of the intimate relation between genius and insanity. They were hallucinated. They had a command over the masses; they were raised above them, and regarded as magicians and demi-gods, in the various mythologies. They were the "insane in excess," while we may speak of some others under another category, that of the "insane in defect." These were among the crowd of fanatics, some sceptics, regarded as the victims of Jove or Siva, who, in relation to that epoch, were looked upon as imbeciles and moral lunatics, although in the present day they probably would be considered as enlightened men. These two types constitute the two poles of mental aberration from early times, and between them extends a vast psychopathic sea, in different gradations, which appear to be derived from one of these extremes, and lie in the intermediate zone of physico-psychology.

Although between the present sporadic manifestations (either in the form of paranoia or other variety of mental disease) and the mystical aberrations of primitive peoples, there remains a wide chasm, we do not fail to find some connection between the types of the two periods. If it is true that the former may be regarded as the *remanet* of the latter, we shall find an interesting subject for study in the psychology of the intermediate period. For example, the paranoia of to-day, in a given form, ought to be found in the intervening epoch in a greater number of similar forms. That which to-day consists of one would, in a preceding epoch, be a nucleus; at a still earlier period, a group or sect, possessing great influence by its conspicuous position. In short—and this is the point to which we at last come—the *isolated cases of insanity of our age have their counterpart in the epidemics and endemics of the days of old*. On the other hand, the epidemic insanity of to-day is confined to the obscure and isolated paranoiac, or it forms only a small part of other morbid mental manifestations, derived from another source.

He who undertakes the historical study of epidemic and endemic insanity must collect all the materials impartially with-

out favouring any particular theory, and then place side by side with this the later anachronistic manifestations which derive their origin from primitive mental life, and distinguish the forms which are idiopathic from those which have become so in the course of time.

Insanity, Endemic and Epidemic.—We must also distinguish between endemic and epidemic insanity.

(1) **Endemic** insanity is, properly speaking, confined to one region or district, but it may extend beyond this boundary and become epidemic—for example, lycanthropia, at one time endemic in Arcadia, the first victim being King Lacaon. The same is true of the malady of the Scythians and the tarantism of the Apulians. Besides its local character, another element must be recognised in endemic insanity, and that is the stability of the particular form, its tendency to propagate without the character of moral contagion, as if all those affected obeyed certain contemporaneous psychological circumstances, not passing from man to man, or due to the influence of suggestion.

These endemics, which most reflect the tendencies of primitive races, who are least affected by an individual malady, ultimately take root, as in China, in accordance with the conditions of the country, and seem to spring up to assert the nationality of the mental aberration.

If the endemics outside the boundary of their origin are spread among people with different habits and conditions, where they become modified and transformed, they, as a rule, appear less intense and less frequent, as, indeed, happens in other endemics.

(2) **Epidemic** insanity is always more diffused than the former. In general, whether originally endemic or not, other agents aid in its diffusion and development in countries altogether different in character and clime. From this point of view, we recognise two great classes:—(a) Epidemics which appear and extend under the influence of the same historico-psychological circumstances, under the same predominance of feeling and impulse: (b) Epidemics which are developed through the influence of one or more individuals, who guide the masses and imbue them with their own morbid ideas. While endemics, when pure, represent the reproduction—the re-inforcement—of psychopathic manifestations at one period, normal epidemics, although they may also have a real basis, have not one necessarily—it is not an indispensable condition of their growth. On the contrary, it is much more probable that a new ele-

ment of disease is introduced, or that this originates in psychical contagion communicated to the masses already predisposed by certain events or the suggestive influence of individuals. Naturally endemics, thus understood, are rarer after the epoch of dispersion and organisation of races. As all history shows, the incessant intercourse which civilisation favours renders epidemics of insanity more difficult. At present we encounter in our own country the pure endemic forms peculiar to certain races much less frequently than formerly, either because they are a residuum of semi-barbarous races or because they rebel against the premature yoke of an antiquated civilisation, where they assume the form of isolated seizures of a special type, as in Russia in certain forms of *raskol* and among the *Scopzki*. Endemics are therefore direct descendants of the morbid ideas of a people relatively sound in mind, while epidemics are an amalgam of new and old elements. Both phases of insanity—the endemic and the epidemic—are intense and collective manifestations of the psychopathic life of a people in whom the normal psychical life struggles to gain the ascendancy.

By the dilution and separation of the morbid phenomena, which are, as regards the time of their occurrence, an anachronism, we witness special secret societies and rites which are genuine epidemics in a reduced form both in the number of votaries and in the insanity of belief, no matter how ephemeral, or whether one individual places himself at the head of a particular psychical movement.

From what has been said, it will be seen that the student of epidemic and endemic insanities must take a broad philosophical view of the whole subject, not excluding the preparatory soil of primitive civilisation, which, as we have indicated, furnishes their nucleus, and proceed to study them in the historical period, whence he will pass finally to the consideration of the castes and fanatical bodies—the last link joining sporadic insanity to the related disorders of the early races.

Groups.—In the following groups might be included all the collective psychopathic manifestations necessary to study:

(1) *Pure hallucination*, which comprises isolated subjective sensations, common to many persons at the same moment.

(2) *Psychoses*, divisible into (a) *Simple*—Melancholia, religious, political, pseudo-scientific. (b) *Complex*—Hallucinations, with ecstasy, impulses, zoanthropia.

(3) *Convulsive attacks*, as in epidemics of hysteria, epilepsy, and chorea.

Such is the general plan to have in view in studying this wide subject historically. It would be an enormous task to investigate the original psychological evolution of different nations from the period of remote civilisation; but, so far as it is possible, it ought to be undertaken, obscured though it must be by legendary darkness.

The psychological student may glance with advantage at the great Indian and Israelitic civilisations. He should search for the source of mental disturbance, and track the former through the civilisation that succeeded that of the Indian race. The psychical manifestations he discovers will throw much light on Asiatic civilisation, and he will follow the displacement of Israelitic civilisation in Europe by its transformation into Christianity. From this point, confining himself to Europe, he can trace the Greek and Roman civilisations, and in a general way the Asiatic populations which emigrated into Northern Europe—the Scandinavians, Slavs, and Germans.

For the further elucidation of this inquiry, the reader is referred to the Articles INDIA and ISRAELITES.

History of Epidemics.—From the first centuries of the vulgar era until our own times we meet with epidemics of demonology and witchcraft.

We ought to record the epidemic of religious chivalry which showed itself in the crusades and the platonic gallantry of the knights of the period.

The Middle Ages celebrate the saturnalia of all the endemic and epidemic neuroses more or less marked under the complicated psychical states. The religious colouring always predominates. It is not till the fifth and sixth centuries that a form of pseudo-scientific insanity begins to arise—illustrated by alchemy—regarded by Erasmus as “a demented science.”

Strange fanatical sects arose. Thus, during the pontificate of Evaristo in the second century (A.D. 112), the sect of the **Adamites**, founded by the heresiarch Prodicus, sprang up. The acolyte prayed nude, boasting that he imitated thereby the innocence of the primitive races. Here we see an illustration of what has been so strongly insisted on—a true endemic limited to a group, while the same thing was, in the races in question, a *normal* condition.

Another sect, the **Ophites**, made the serpent an object of worship. Isolated from the masses, they remind us of the first rites of various lycanthropies which we find in the religious practices of all early

people. To-day it has its counterpart in the serpent-worshippers of India.

Some of the loathsome religious rites practised by the **Gnostics** constituted an aberration which at one period found proselytes everywhere, and would be absolutely abnormal among even the Redskins or the native inhabitants of Tahiti.

Among the followers of **Montano**, two women had visions, and one of them asserted that in an ecstasy she had seen the human soul, “soft, delicate, and shining.” To the other, Christ, she alleged, appeared with the face and dress of a woman. They prophesied, and wandered about the temples, followed by virgins carrying lamps, who declared themselves able to interpret their prophecies. Montano and his two prophetesses committed suicide at the same time.

Among the sect of the Montanists, the **Ascadrogites** rushed furiously through the streets, often entered the churches tumultuously with wine skins, blown up, in their hands, which they beat loudly together, repeating the text, *mittunt vinum novum in utres veteres*.

Again, the **Simmachians** professed to hate the flesh, and mutilated themselves in a shocking manner.

The disciples of **Valesian** followed the example of Origen, fearing the temptation of the flesh, like the Russian Scopzki. This is a marked example of an aberration which cannot be derived from the psychological habits of early races, because contrary to their multiplication, but which has risen up rather than been hereditary, and is epidemic rather than endemic.

St. Epiphanius describes a sect called the **Massabiani**, who, in addition to manifesting other mental aberrations, went about with sacks on their backs, bursting forth into wild leaps.

An epidemic of barking or howling like a dog occurred in Alexandria in the fifth century, those affected being called **Acefales**. “Alexandria viri plurimi itemque mulieres et pueri, graviter a demonibus verbati, assidue latrabant.”

In the eighth century there was a remarkable **epidemic of demonology and hallucination**, beginning in Calabria and Sicily, and extending to Epirus, Greece, the Ægean Isles, and even to Constantinople. It was marked by a contagious hallucination, “in which, in the first instance, were seen upon the clothes of those affected, certain dark olive-coloured crosses, which were followed by the appearance of a carbuncle that quickly consumed its victims.” Many were in a kind of ecstasy, after recovery from which they remained for long motionless and without

feeling. They saw certain frightful phantoms, which came near and talked familiarly with them of many things they remembered perfectly, and recounted to others, when they came out of that rapture. They often declared that they had seen these phantoms enter into houses whose owners they named, and kill the inhabitants" (Birmino, "Heresia," vol. ii. Venice, 1733).

It is dreadful to think of all the outbreaks of mental excitement and hallucinations during the centuries when ignorance and superstition enveloped science and art, and caused a condition most pernicious to the intellectual life of the people. All nature seemed bewildered. The monk in his convent thought that the thunder and lightning, the waterfalls, the torrents and the black clouds were his foes, and besieged his monastery—that, in short, Satan was concealed everywhere in the natural forces around him. The end of the world was thought to be imminent. Uncertain of the morrow, panic-stricken with the prospect of a frightful calamity, men failed to provide for all save their souls. Truly a rich soil for epidemic insanity! The *truce of God* came in good time, instituted by some pious Aquitans. It caused all private revenges and wars to cease from the Wednesday to the following Monday in every week, and had some effect in stemming the torrent of mad excitement, for a while, at least.

Somatic Epidemics.—It must not be forgotten that the study of *somatic* epidemics reveals a large amount of mental disturbance. We may divide them into categories; first, those which are purely physical, as infection, poverty of blood, and the injuries to the system which always accompany epidemics; secondly, those which are solely moral and consist in the mental aberrations which the alarm of an extraordinary scourge induces, including the anxious attempt to explain its mystery (*Erklärungsversuch*), which constantly ends in madness. We will not speak of the moral influences of those disasters which are inevitable, and which expose man to the influence of fear and terror; but mental action of earthquakes, inundations, and storms must not be overlooked in the study of our present subject.

Anointers.—During the plague which raged in Europe in the sixteenth century, the history of the "Anointers" and that of the "Poisoners" ought to be understood. It forms a complete treatise of psychopathology. It is, indeed, an old-world history, for we find it in the records

of sorcery and witchcraft. Sorcerers were always considered distillers of poison and revealers of the occult and supernatural black arts, as witchcraft was considered a mass of infernal practices. Witchcraft, spells, and the evil eye, were constantly mentioned in the most ancient records of sorcery, with an accompaniment of cauldrons and ointment of babies' flesh. Superstitious belief in the efficacy of unguents and balsams is found in the mythology of all peoples; hence it was natural to suppose that evil beings would employ these ingredients for their malignant ends. Ideas of this kind, even admitting that they were at one time the patrimony of a few or of a sporadic form of actual insanity, sprang up unconsciously among the masses under a special psychological stimulus, and became so aggravated as to assume an epidemic character. It may be said that the madness which becomes more intense in epidemics is induced by fresh causes, but has not a new origin; it is simply disinterred, so to speak, from the archaic strata of mental life, and surrounded it may be by another phase of civilisation.

It might be held that the terrible sect of the **Assassins**, which flourished in the latter half of the twelfth century and the beginning of the thirteenth, was a mental epidemic. It was intensified by the intoxicating and stupefying effects of opium, employed by Hassam the "Old Man of the Mountain," who told his dupes that their sensations were an anticipation of the delights of Paradise, and that they therefore could judge of the pleasures in store for those who obeyed him. In this epidemic, honours, tortments, and life itself were despised in order to obey their leader, and they killed themselves as others with the most perfect indifference. It is possible that the name assassin was derived from hashish, with which they were sometimes intoxicated, although it is generally explained by the name of the founder. How many germs of madness this remarkable movement must have sown and cultured! We have thought it useful to introduce it in this place because it throws a ray of light on the mental life of the period, and enables us to understand why mankind felt themselves under the dark spell of the mediæval devil.

In 1260 a boy in Perugia prophesied a great calamity, and thence arose the famous epidemics of **Flagellants** and **Scourgers**, which spread throughout Europe. Religious madness, the morbid expiation current in those times, intensified as it was by the frequency and

gravity of epidemic outbreaks of St. Anthony's fire (which far from assuming the mild form of to-day appeared according to Fuchs to be ergotism in its convulsive and gangrenous forms), did not find vent alone in the Crusades, and the enormous processions of pilgrims.

In 1456 a great **procession of youths** of both sexes occurred in the Puglie on account of plagues and earthquakes. Flagellation formed one feature of this epidemic.

Verga has written a critical review of the plague described by Cardano as breaking out in Casale in 1536, and has studied the particular forms of insanity caused by this great pestilence, and we refer readers wishing for further particulars to that work (*Med. Gazzetta of Lombardy*, Appendix psych., 1862, p. 119).

We must now speak of the **Dancing Mania** and **Tarantism**.

It is impossible to describe this extraordinary epidemic mania in more graphic terms than have been employed by Hecker in his admirable work on "The Epidemics of the Middle Ages." "It was a convulsion which infuriated the human frame in the most extraordinary manner, and excited the astonishment of contemporaries for more than two centuries. It was called the dance of St. John or St. Vitus, on account of the Bacchantic leaps by which it was characterised, and which gave to those affected, whilst performing their wild dance and screaming and foaming with fury, all the appearance of persons possessed. It did not remain confined to particular localities, but was propagated by the sight of the sufferers like a demoniacal epidemic over the whole of Germany and the neighbouring countries to the north-west, already prepared for its reception by the prevailing opinion of the times. So early as 1374, assemblages of men and women were seen at Aix-la-Chapelle who had come out of Germany, and who, united by one common delusion, exhibited to the public both in the streets and in the churches the following strange spectacle.*

"They formed circles hand in hand, and appearing to have lost all control over their senses, continued dancing, regardless of the bystanders, for hours together in wild delirium, until at length they fell to the ground in a state of exhaustion. . . . While dancing they neither saw nor heard, being insensible to external impressions through the senses, but were haunted by visions, their fancies conjuring up spirits whose names they

shrieked out; and some of them afterwards asserted that they felt as if they had been immersed in a stream of blood which obliged them to leap so high. . . . When the disease was completely developed, the attack commenced with epileptic convulsions. They foamed at the mouth, and suddenly springing up began their dance amidst strange contortions." (*Op. cit.*, p. 88.)

In 1418 Strasburg was the scene of the dancing plague or St. Vitus's dance. Hundreds of men and women danced and jumped in the streets, and tasted no food for days and nights. Music had a great influence on the dancing mania. Masses were performed by the priests, and after the services those affected with the malady proceeded in solemn procession to the altar, where they offered gifts. St. Vitus was regarded as the patron saint of the unfortunate persons who were afflicted with the plague. It is pointed out by Hecker that the dancing mania of the fourteenth century was by no means a new disease. A century before, more than a hundred children fell a prey to it at Erfurt and proceeded to Armstadt, dancing and jumping all along the road. Other examples might be given.

Tarantism. — This remarkable epidemic was closely allied to St. Vitus's Dance. It originated in Apulia, was diffused over many parts of Italy and lasted for several centuries. It was attributed to the bite of the tarantula (*Lycosa tarantula*), a spider common in the Italian province in which the disorder arose. Its alleged poisonous character was altogether groundless.

Our knowledge of the epidemic is derived from Perotti, who was born in 1430. It is thus summarised by Hecker: "Those who were bitten, generally fell into a state of melancholy, and appeared to be stupefied, and scarcely in possession of their senses. This condition was, in many cases, united with so great a sensibility to music that, at the very first tones of their favourite melodies they sprang up, shouting for joy, and danced on without intermission until they sank to the ground exhausted and almost lifeless. In others, the disease did not take this cheerful turn. They wept constantly, and, as if pining away with some unsatisfied desire, spent their days in the greatest misery and anxiety. Others, again, in morbid fits of love, cast their longing looks on women, and instances of death are recorded which are said to have occurred under a paroxysm either of laughing or weeping." (*Op. cit.*, p. 112.)

It does not appear that those who were

* Odon. Raynald, "Annal. Ecclesiastic." A. 1374, Luce, 1752, fol. tom. vii. p. 252.

supposed to be affected by the bite of this spider were impelled to dance except when as stated above. Music, however, which was employed as a cure, aroused them from their lethargy.

It must be added that this strange affection extended before long beyond the locality in which it originated. Hecker observes that "the number increased beyond all belief, for whoever had either actually been, or even fancied that he had been, once bitten by a poisonous spider or scorpion made his appearance annually whenever the merry notes of the Tarantella resounded. Inquisitive females joined the throng and caught the disease, not indeed from the poison of the spider, but from the mental poison which they eagerly received through the eye; and thus the cure of the Tarantati gradually became established as a regular festival of the populace, which was anticipated with impatient delight. Foreigners of every colour and of every race, negroes, gipsies, Spaniards, Albanians, were in like manner affected by it." (*Op. cit.*, pp. 118, 124).

It is well known certain colours had an extraordinary effect. The colour red exercised a fascination over most, the very colour which those who were the subjects of St. Vitus's Dance so greatly disliked. Another idiosyncrasy which characterised this epidemic was the intense craving for the sea, some even throwing themselves headlong into the water.

Tigretier, so called from Tigrè in Abyssinia, is a form of dancing mania and ecstasy, very similar to the dance of St. John already described. An interesting description of this epidemic was given by Nathaniel Pearce, who resided in the country from 1810 to 1819. His wife, a native of Greece, was herself a victim to the disorder. "I at first thought," he says, "that a whip would be of some service, and one day attempted a few strokes, having a strong suspicion that this ailment sprang from the weak minds of women who were encouraged in it for the sake of the grandeur of rich dress and music which accompany the cure. But how much was I surprised, the moment I struck a light blow, thinking to do good, to find that she became like a corpse, and even the joints of her fingers became so stiff that I could not straighten them; indeed, I really thought she was dead, and immediately made it known to the people in the house that she had fainted, but did not tell them the cause, upon which they immediately brought music, which I had for many days denied them, and which soon revived her, and I then

left the house of her relations to cure her."* Pearce adds that he went one day privately to see his wife at a short distance, and that her dancing or jumping was more like a deer than a human being.

Hecker adds the interesting fact that, "the Abyssinians have their Christian flagellants, and that there exists among them a belief in a Zoomorphism, which presents a lively image of the lycanthropy of the Middle Ages. Their flagellants are called Zackarys. They are united into a separate Christian fraternity, and make their processions through the towns and villages with great noise and tumult, scourging themselves until they draw blood, and wounding themselves with knives" (p. 138).

To describe or even to enumerate the mental epidemics which have afflicted humanity would occupy more space than it is possible to allow. No history would be completed which did not give an account of the **Convulsionnaires** who appeared in France in 1731, soon after the death of the Deacon Pâris, who was buried in the cemetery of St. Médard. Miracles were supposed to be performed at his tomb, excitement rose to the highest pitch, many persons were convulsed, and at last Louis XV. ordered the cemetery to be closed. It is stated that this strange epidemic continued for about sixty years. For trustworthy narrations of this extraordinary outbreak of fanatical excitement and actual madness, the reader is referred to Hecker's work (p. 146), and for a description of the Jumpers in America he is referred to a little book bearing this title by the late Dr. Beard.

A very well marked epidemic of **religious ecstasy** arose in Sweden in 1841-42, of which an account has been given by Dr. Sonden, at that time a physician of the lunatic asylum at Stockholm. It sprang up among the country people in the central district of the kingdom. The symptoms were physical and mental, the former were characterised by spasmodic and convulsive attacks, and leaping so that those affected could not remain seated or lying down. The mental symptoms consisted of a more or less involuntary ecstatic condition, in which the subject laboured under hallucinations of sight and hearing, and was impelled by an irresistible desire to preach. The affection spread through sympathy and imitation, rarely appearing in the night or in solitude. The above-mentioned physician attributed the epidemic to the general abuse of

* "The Life and Adventures of Nathaniel Pearce, written by Himself," London, 1831 ("Hecker," *op. cit.*, p. 136).

alcohol, insufficient food, following on bad harvests, and the action of fanatical excitement.*

[References. — De la Folie considérée sous le point de vue pathologique, philosophique, historique et judiciaire, depuis la Renaissance des Sciences en Europe jusqu'au dix-neuvième siècle, par L. F. Calmeil, Paris, 1845, 2 vols. Mental Epidemics in Animals, by Dr. Lauder Lindsay, *Journal of Mental Science*, vol. xvii. p. 525. Hecker's Epidemics of the Middle Ages, Sydenham Soc. 1845. Phantasmata, or Illusions and Fanaticisms of Protean Forms productive of Great Evils, by R. R. Madden, F.R.C.S., 2 vols., Lond. 1857. Epidemic Mental Diseases of Children, translated from the German, *Journ. of Psych. Med.*, January 1853. See also *Ibid.*, April 1849, p. 171; and April 1851, p. 171.

EPIDEMICS, MORAL (ἐπιδήμιος, among the people). A term applied to a series of delusions, fantastic or absurd actions, &c., which have spread through a district, or have affected the inmates of an establishment like an epidemic. (See EPIDEMIC INSANITY.)

EPILEMPHSIS (ἐπιληψις, from ἐπιλαμβάνω, I seize or lay hold of). A term applied by Hippocrates ("Coac. Prænot.," 599) to epilepsy.

EPILENTIA (corruption of Epilepsia, from ἐπιλαμβάνω, I seize or lay hold of). A synonym of Epilepsy.

EPILEPSIA CURSIVA (ἐπιληψία, from ἐπιλαμβάνω, I seize; *curro*, I run). A name given to that form of epilepsy in which the patient commences running and then falls down in a fit. (Boëtius.)

EPILEPSIA DROMICA (ἐπιλαμβάνω; δρόμος, the act of running). A form of epilepsy, described by Semmola, presenting close similarity to chorea.

EPILEPSIA GRAVIOR (ἐπιλαμβάνω; *gravis*, severe). The typical form of epilepsy, when the fits are complete; the *haut mal* of the French.

EPILEPSIA LARVATA (ἐπιλαμβάνω; *larvatus*, masked). (See EPILEPSY, MASKED.)

EPILEPSIA MITIOR (ἐπιλαμβάνω; *mitis*, mild). The imperfectly developed form of epilepsy, when the fits are abortive or irregular; the *petit mal* of the French.

EPILEPSIA SALTATORIA (ἐπιλαμβάνω; *saltator*, a dancer). A synonym of Choreia.

EPILEPSIA SATURNINA (ἐπιλαμβάνω; *Saturnus*, an old name for lead). One of the later results of chronic lead poisoning. The onset of the convulsions is often acute, but may be preceded by

* See "Annales Médico-Psychologiques," 1843, p. 454.

The Editor is indebted to Prof. Tamburini and Dr. Tonnini for the greater part of this article. They, however, prefer, the Editor regrets to say, that it should be anonymous.

giddiness, noises in the ears, tremor, restlessness, and insomnia. They may occur at the onset or during the course of the delirium; they are epileptiform, usually general, rarely hystero-epileptic (Bramwell) or cataleptic (Bartens). Somnolence and coma usually succeed delirium and convulsions. The coma is not often absolute, the patient can be roused for a few moments, but quickly relapses into unconsciousness. Death may occur in the coma from respiratory failure.

EPILEPSIA SPINALÈ (ἐπιλαμβάνω; *spina*, the spine). A term applied by Brown-Séquard to the condition described as ankle reflex.

EPILEPSIA TROCHAICA (ἐπιλαμβάνω; *τροχάϊος*, running, moving rapidly). An epileptiform affection described by Semmola, resembling chorea.

EPILEPSIA VERTIGINOSA (ἐπιλαμβάνω; *verto*, I turn). (See EPILEPTIC VERTIGO.) Also used as a synonym of Epilepsia mitior.

EPILEPSIA LARVÉE. (Fr.) Term used by Falret and Morel for Epilepsy, Masked (*q.v.*).

EPILEPSIES AND INSANITIES.

I. **Epilepsies**.—Under the term epilepsy, used in its broad generic sense, are included several distinguishable forms of disease, sufficiently related to each other to make it profitable to discuss them together. When unqualified the term may usually be taken as meaning epilepsy proper or "genuine" epilepsy—a disease of the highest nerve centres with important psychological relations. Used in its generic sense it includes all paroxysmal sensori-motor discharging lesions of the nervous system, and it is in this collective sense that we now employ it.

For descriptive purposes the nervous system is divided by the anatomist into a central and a peripheral nervous system. In the central nervous system he includes (1) the cerebrum, consisting of the hemispheres, central ganglia, pons Varolii, and medulla oblongata; (2) the cerebellum, and (3) the spinal cord. In the peripheral nervous system he includes the peripheral nerves, with their ganglionic masses, nerve plexuses, and nerve endings. This division serves its purpose admirably, but it is quite unsuitable in discussing the relation to one another of the paroxysmal seizures to which the nervous system is liable. Here we must adopt, as might be expected, not an anatomical, but a physiological or functional division, and this physiological division corresponds with what we know of the development of the nervous system. Such a division has been made by Hughlings Jackson.

In his hands it has been the means of introducing order where all before was chaos, and in this article we shall endeavour to follow his division, and also to give an account of his views on this subject without in any way making him responsible for the phraseology or the illustrations that we employ, although these are largely borrowed from his writings. He divides the nervous system into *lowest, middle, and highest levels*. The *lowest level* corresponds practically with Marshall Hall's "Spinal system"—that is, it includes the grey matter of the spinal cord and its upward prolongation in the brain as far forward as the oculomotor nucleus. Like the other levels these lowest centres are sensori-motor. They are simple in structure, automatic in action, and they represent directly actions of organised or habitual character, a large aggregation of reflex acts on which our vegetable life depends. But lowly as these centres are, corresponding in evolution we might say to the nervous system of a lancelet, it is to be remembered that the whole body, every part of it, is represented in these lowest centres. The grey matter of these centres is the first remove from the periphery, the first fortified point where nervous energy may accumulate. The general arrangement is that of a pair of connected grey centres with a pair of nerves corresponding to each body segment, these being united antero-posteriorly, but more or less independent. More or less we say, for already there is the dawn of the aggregation and complexity which reaches its utmost development in the highest centres. It has been shown that a convulsion involving the whole body can be induced by stimulation of the medulla oblongata. Even the lancelet has a rudimentary indication of a cerebrum. There is no sudden leap in the development of the nervous system, either in animals generally or in man, who is a brief epitome of the animal development that lies below him. But there are points of rest and points of activity, as it were. The lancelet is in its nervous system as much above a centipede as a centipede is above a sea-urchin. The actions presided over by these lowest centres are, as we have said, of the simplest character, uncomplicated and automatic in nature, including besides many limb movements, the reflex visceral activities, such as defæcation and urination, swallowing and respiration, and also certain reflexes which do not rise into consciousness, such as the peristalsis of the intestines, vaso-motor and cardiac action, and highest upward of all,

perhaps, the reflex movements of the pupils.

Above this "spinal system" or lowest level lie the *middle centres*, functionally definite, but anatomically not so readily definable as were the lowest centres. Sensori-motor like the others, they are on their motor side practically synonymous with the cortical motor area of Ferrier and others, including also the corpora striata, which seem to be merely a portion of the grey cortex separated off. This motor area includes the two central convolutions which bound the fissure of Rolando, and it spreads out along the longitudinal fissure above and includes the marginal convolution. On their sensory side our knowledge of the anatomical limits of the middle centres is extremely indefinite. They include probably great part of the temporo-sphenoidal lobe, the gyrus fornicatus and the inferior parietal lobule. Clinical and experimental observation is direct in motor phenomena, indirect and inferential in sensory phenomena. Progress in the latter direction has therefore been slower, both from the inherent difficulty of the subject and the greater liability to fallacy, but each year improves our knowledge of localisation in the middle centres. The relation of these middle centres with the periphery is more complex than that of the lowest. As Hughlings Jackson expresses it, all parts of the body are represented in the lowest centres, are re-represented in the middle, and are re-re-represented in the highest centres. We have in these middle centres reached the second remove from the periphery, the second fortified point where nervous energy may accumulate. The actions represented in these centres are more complex, less organised and less automatic than those of the lower centres. Each part of the body is represented in them differently in different portions, much in one portion, little in another. Tongue and lips are represented in the lower and outer portion of the two central convolutions, above these the face, higher still the arm, then the leg, and highest of all the trunk, extending on the mesial surface of the marginal convolution. Application of the electrodes to definite portions of this area not only produces movements of definite parts, but definite movements of these definite parts, with the same certainty that touching certain keys of a piano produces certain notes. In a sense we have been neglecting the sensory side of these centres, but it is to be remembered that all action is in its causation sensori-motor, as all centres are sensori-motor. It is merely for the sake

of convenience and definiteness that we have spoken of the motor side only. The activities of the middle centres are possibly accompanied by a varying amount of consciousness, to indicate which fact they have been termed subconscious.

Lastly, the *highest centres*. These are situated in the anterior or præ-frontal, and in the posterior or occipital regions. Here, again, all parts of the body are represented, are re-re-represented in still more complex combinations, in actions less organised, indeed, in actions least organised, least automatic. The element in these highest centres is still sensori-motor, more motor anteriorly, more sensory posteriorly. It is not usually admitted that the præ-frontal region of the brain is motor, and this may be regarded as one of the still unverified working hypotheses of Hughlings Jackson. As a working hypothesis, however, it holds the field, for it is the only hypothesis regarding the præ-frontal region that explains anything, and without it our knowledge of epilepsy would be a mere *indigesta moles*, an unco-ordinated heap of fragments. The hypothesis is unverified in the sense that it has been found impossible by our ordinary means to induce movement by stimulation of the præ-frontal lobe, or at least of great part of it. This fact must be recognised, but it would be unscientific to give it more than its due weight; it was at one time considered impossible to induce movements by stimulation of the so-called motor area.

We have spoken of the mode of representation of the various parts of the body in these three levels of centres, and it is necessary here to discuss this point somewhat more in detail. When the electrodes are applied to a particular spot at the lower and posterior third of the motor area a movement of the thumb is produced, and this spot is called the thumb centre. There is no objection to this term if it is understood to mean that in this spot the movements of the thumb are most represented and most purely and separately represented. But if it mean that in this part of the brain and in this part alone, the thumb and the thumb alone is represented, then there are various objections to the statement. From all that we know physiologically and pathologically of the grouping of centres, it is not muscles but movements that are represented in the cerebral cortex, or, to put it more accurately, not parts of the body but parts of the body as they are in action that are represented. This seems almost a self-evident proposition, but the scope of it is not at all

fully appreciated. As the thumb has so little independent action and is so much concerned in so many complex movements we should not expect to find any considerable portion of the cerebral cortex devoted to it exclusively, whereas along with other parts we should expect it to be well represented. As a matter of fact, only in one very small area is it possible to elicit movements of the thumb alone, and around this is an area, stimulation of which induces movements of the thumb along with other parts. Hughlings Jackson's position in regard to localisation is a very intelligible one. He is, as he says, neither a "localiser" nor a "universaliser." He does not admit, on the one hand, that there is such an entity as a thumb centre, a part of the nervous system set aside exclusively for the thumb. And he does not admit, on the other hand, that the thumb is similarly represented in all parts of the nervous system. He considers that that organ is represented in all parts of the nervous system, lowest, middle and highest centres, but very differently and very unequally in different parts of these centres. At a certain portion of a given level it is represented almost exclusively, other parts of the body being in this portion scarcely at all or very little represented; at other portions of the level it is represented less and less down to very little, other parts of the body being represented more and more. The extent and complicacy of its representation increases from below upward in the manner indicated. Now the question will readily be asked if all parts of the body are represented in the highest centres, why do we, in a destructive lesion of the frontal lobes, find no part of the body paralysed? Hughlings Jackson would answer, But is it so? In such a lesion, some (nay, all) parts of the body *are* paralysed. In every such destructive lesion some movements of *all* parts of the body *are* impossible, but no part is absolutely paralysed. Any given part of the body is represented in *every* part of the highest centres, and the parts of the highest centres left uninjured are sufficient to preside over many movements of that particular part of the body. No part therefore appears to be paralysed, although all have lost certain movements in consequence of the injury.

So far we have spoken of the nervous system as merely a complex sensori-motor physical machine, but it is necessary to state here that these highest centres are more, they are the "organ of mind." In connection with those most complex, least organised and least automatic movements

represented in them there arises the new phenomenon of consciousness—that is to say, mind. We simply make this statement here and shall return to the subject.

Three levels of evolution have been described in the nervous system, but it has not been implied that these levels are sharply delimited. As shown by the facts of naked eye and microscopic embryology, from the periphery are evolved the lowest centres, from these the middle centres, and from these again the highest. There has been no actual leap, but evolution has not been uniform; there have been formed these fortified points at which nervous energy has accumulated, and in which secondary "internal evolution" has taken place. Parallel with the order of evolution and arising out of it is the relation of subordination and control between these centres. In the nervous system we have a system of local government with central and imperial control, a political system evolved in long past ages. The lowest centres are competent to carry on their simple, uncomplicated local functions without reference to the higher centres, receiving from them only that general, steady, non-interfering control that a wise central government exercises on the local authority. The middle centres have more complex functions involving the co-ordination of wider areas, controlling the lower centres, controlled by the higher. The highest centres preside over the most complex, least organised, and least automatic combinations of the periphery, and exercise also a continuous but non-interfering control over the lower centres. The relation may by analogy be compared to the relation of the London General Post Office with the county and the village post-offices. The analogy is a very complete, and in many ways instructive, one.

Lesions of this complex sensori-motor system produce results according to their nature and locality. These lesions may be divided into (1) *negative or destructive* lesions, and (2) *discharging* lesions. When part of the nervous system is destroyed, for example, ploughed up by a hæmorrhage or replaced by a tumour, we have a destructive lesion; when part of the nervous system is rendered unstable, so that its energy is liberated in an excessive fashion, we have a discharging lesion. It will readily be understood that these two lesions may be associated with one another. The area around a destructive lesion may very well be rendered unstable, and, on the other hand, a severe discharge may so completely disorganise part of the brain that

for functional purposes it is destroyed, although there may be no gross evidence of destruction.

The result of a destructive lesion of the nerve centres will be in the first place the loss of certain movements represented in those centres, involving more or fewer muscles, and those muscles more or less completely, according to the position and extent of the lesion. When many movements involving the use of a given muscle remain, that muscle does not appear to be paralysed, although it really is so. Hence, owing to the extent of the representation, or rather of the re-re-representation of movements in the præ-frontal cortex, a destructive lesion of this area seems to cause no paralysis. So many movements involving any given muscle remain intact, being represented outside the destroyed area, that that muscle is not recognised as being paralysed. The patient is said to be "awkward," but this "awkwardness," when analysed, really consists in the loss of certain movements, and is as real a form of paralysis as a monoplegia or a hemiplegia. But in addition to this loss of movements (and there is, as has been implied, a loss also of sensation), owing to the relation of higher with lower centres, there is, as an indirect result of a destructive lesion, overaction of lower centres released from control. This overaction is not *caused by* the destructive lesion in the proper sense of the term. To say so would be tantamount to asserting that a hole in the brain can cause complex muscular and other activities, that nothing can cause something. The overactions are the result of exaggerated activities of lower centres. The late rigidity of an ordinary hemiplegia from hæmorrhage into the middle motor centres cannot be caused by the cavity in the brain made by the hæmorrhage. Hughlings Jackson has long held that it is due to unantagonised cerebellar influx, and recent observations by Bastian as to the results of spinal lesions have gone far to establish his hypothesis. The same applies to the exaggerated knee-jerk and ankle-clonus of this condition, to the forced movements of tabes dorsalis, and many other more complex examples of lesions in middle and lower centres. To lesions of the highest centres we shall return subsequently.

A discharging lesion is the result of a nutritive molecular change in some part of the nervous system which renders it liable to explode, to liberate its energy irregularly. The nerve centres may be regarded as an accumulator in which nervous energy is stored, to be given off on

due external stimulus; when the sensorimotor arc is closed. Owing to a fault in the accumulator this energy, which should remain latent, becomes active much as the two foils of a Leyden jar may, on reaching a certain tension of positive and negative electricity, discharge through the glass, and in doing so will very probably break it. Bearing in mind what has been said of the relations of the levels to one another, it will be understood that discharge of a higher centre if strong enough will induce discharge in the lower centres, an abnormal, excessive discharge, a confused mass of movements, varying in their extent with the position of the lesion. To make use of analogy again, the death of a village postmaster, a county-town postmaster, or of the Postmaster-General, may be regarded as destructive lesions. The insanity of any one of these officials would be the parallel of a discharging lesion.

We began by stating that we should use the term epilepsy in its broadest sense of a paroxysmal discharging lesion, and we have now to consider the effects of such lesions in the three levels of the nervous system. (1) And first, there are paroxysmal discharging lesions in the lowest level of evolution, the "spinal system" as defined. Formerly it was supposed that all epilepsy is bulbar, then the pendulum swung to the opposite extreme that no epilepsy is bulbar. In considering this question it is to be remembered that last evolved is practically synonymous with most unstable. As evolution proceeds the parts below become more and more stable. The infant's lowest centres are the highest it has got, its last evolved, and therefore still unstable. As evolution goes on, these lowest centres become more and more stable, less and less liable to discharge. We might therefore expect to find bulbar fits not uncommon in children, but rare in adults. As a matter of fact, we do see fits in children which may be considered due to discharges in bulbar centres. The "inward fits" described by mothers belong to this type. The child gets suddenly pale, ceases to breathe, and becomes livid in the face, a condition due, we may suppose, to a paroxysmal discharge in the respiratory centre. The spasmodic affection termed laryngismus stridulus, which occurs in children, and especially in rachitic children, falls into the same group. And so probably does the spasmodic asthma of adults. We may suppose that in all these cases the respiratory centre is unstable, and that from the weak collapsing chest of rickets, from obstructed nares or other cause of de-

ficient blood aëration there is an accumulation in the blood of respiratory effete matters. It is interesting to note that the attack of asthma occurs most frequently from 2 to 4 A.M., "the darkest hour before the dawn," the period when the vitality is at its lowest, when respiration and circulation are feeblest, when nitrogenous waste accumulating in the stagnant circulation induces the gouty paroxysm, and when death is most liable to occur in the old and feeble. The difficult respiration which has, during the day, needed all the surplus of vitality and sometimes even the help of conscious effort, has now subsided to the lowest ebb compatible with prolonged life, and the supervenous blood acting as a poison causes the unstable respiratory centres to discharge violently and irregularly, running all respiratory actions into a confused mass.

(2) Many years ago Hughlings Jackson recognised a form of localised convulsions, differing from epilepsy proper in various important points of symptomatology, ætiology, and treatment. He termed these fits *epileptiform seizures*; they are now generally known both in this country and abroad as *Jacksonian epilepsy*. For whatever reasons, the ignorance as to the distinction between Jacksonian epilepsy and epilepsy proper, or "genuine" epilepsy, is still very common, and the term epileptiform is in common use by medical men to describe fits of vague indeterminate character. Such a use of the term is much to be regretted. To distinguish between an epileptic and a hysterical fit is not unfrequently difficult, or, where the fits are not seen, impossible; but it is comparatively rare to find difficulty in distinguishing cases of Jacksonian from genuine epilepsy, and the terms Jacksonian epilepsy or epileptiform seizures should be rigidly restricted to the cases of which we are now to speak. A patient has repeated convulsive seizures, commencing always in the same part of one side of the body, extending from this part in a definite order of progression more or less widely in different fits, sometimes ending in unconsciousness, sometimes not, but never beginning with unconsciousness. The fit lasts a variable time, and leaves the parts affected weaker than before the attack. It may recur very frequently, even to the extent of a hundred a day, and there is more or less permanent paralysis of the parts most affected. This is a case of Jacksonian epilepsy, and differs *in toto* from genuine epilepsy, both in pathology, in symptomatology, and in treatment. It is due to

a local discharging lesion in the middle motor area, the result in a large majority of cases of gross cortical disease, such as a glioma or a syphilitic gumma, of which there will most probably be other evidence, such as headache, vomiting, and optic neuritis. It begins with a localised spasm, for example, of finger and thumb, and this spasm has a definite "march," spreads, for example, from the hand to the arm, from the arm to the face, then to the leg. It may even cross to the opposite side of the body, first the leg, then the face and arm. When the spasm becomes thus extensive, and especially when it crosses to the opposite side, the patient usually becomes unconscious, but only after a distinctly appreciable interval of convulsion. In genuine epilepsy, on the other hand, to take an average case and describe it in barest outline, the patient suddenly loses consciousness, partially or completely, and is then convulsed. The loss of consciousness is the essential feature in genuine epilepsy, it is, as it were, an accident in Jacksonian epilepsy. The spasm in genuine epilepsy is in most cases general, or at least spreads with very great rapidity. It is first tonic, a "clotted" mass of contending movements, then clonic as the spasm passes off, leaving the patient unconscious and motionless, except as to heart and respiration. After a variable time he recovers consciousness, and is physically weak and mentally dazed, usually for hours. This attack is the result of a discharging lesion in the highest centres, sensori-motor arrangements in the anterior and posterior parts of the cerebral hemispheres which, as we have seen in the first place, re-represent all parts of the body in their most complex, least organised, and least automatic combinations, and, in the second place, are the anatomical substrata of mind. Such a discharging lesion is very rarely the result of gross disease of the brain. It is a molecular or nutritive disease, a natural inherited defect of development, or the result of unusual strain in the course of growth and life.

Of Jacksonian epilepsy we may make varieties in accordance with the localisation of sensory and motor function in these centres. For our present purpose we need not particularise farther than we have done. We have already stated that a certain variable amount of consciousness has been supposed to accompany the activities of the middle centres, and these activities have therefore been called sub-conscious. Indeed, it has been held

that consciousness accompanies all activities down to the periphery. If so, we should expect that in Jacksonian epilepsy there would be an affection of consciousness. There is certainly no obvious gross affection, and we may at least, for the present, neglect the mental side of these paroxysms, if, indeed, they have such a side. Before passing on to consider genuine epilepsy in which the physical and the mental are equally concerned, it will be well for us to take the preliminary part of the second head of our subject.

II. Insanities.—Our object in the following paragraphs is to see whether it is possible to find any principle on which to arrange the various forms of insanity, or as they may properly be called the various insanities, so as to indicate their affinities for purposes of comparative study. With the ordinary classifications of insanity according to supposed causes, age, &c., we have at present no concern. They are all more or less necessary. For our present purpose, however, they have no value whatever. In all departments of knowledge that have developed from arts into sciences, we have two classifications of the objects concerned, namely the "natural" and the "artificial." The latter always comes first, and is formed as follows: Some outstanding easily recognised point is chosen; for example, in the case of plants, the number of stamens and pistils possessed by the flower. All the individuals of the department are then arranged in groups according to this outstanding peculiarity. The process necessarily brings many very dissimilar individuals together, and this is provided for by the formation of sub-groups and exceptions. Such a classification is useful for purposes of recognition, but it possesses no suggestiveness, leads to no discoveries as to origin, affinities, structure, or uses. The "natural" classification, on the other hand, is based, as, for example, in botany, upon deep-seated affinities often not easily discovered, but of essential and usually developmental importance. The "artificial" classification serves in many cases the purpose of what may be termed an index classification. Given the number of stamens and pistils possessed by a flower, and perhaps some of the characters of the seed, it is usually easy to discover the name of the plant, and so to ascertain its characters and uses. The ordinarily received classifications of insanity are "artificial," in the sense defined; we are at present in search of a "natural" classification of insanity. The patients in an asylum are arranged according to

the "artificial" classification of their disease, according, for example, as they are or are not maniacal, suicidal, &c. For asylum purposes it is of the utmost importance to know whether this patient or that is suicidal or not, but for purposes of study it matters comparatively little whether he is or is not.

The clue that we possess for traversing the tangled labyrinth of mental affections lies in evolution and its reversal, dissolution. We have spoken of the evolution of the nervous system, lowest, middle and highest levels, the middle developed from the lowest, the highest from the middle, each sensori-motor, each representing impressions and movements up to the highest, which too is sensori-motor, represents impressions and movements. But we have also stated that while these highest centres are "for body," they are also "for mind," are the "organ of mind," the anatomical substratum of consciousness; and it is in this relation that we have now to deal with them.

The precise relation between mind and nervous activities is a question on which much has been said, useful and useless, but perhaps the most important point for medical men, at least in our present discussion, is to keep the two clearly distinct, never to pass from the one to the other in the psychological jugglery which satisfactorily explains by a phrase so many of our deepest and highest life-problems, following only too closely the sinister advice of Mephistopheles to the student, and pointing the way to the temple of certainty as passing through the sure gate of Words. The subject is an important one, and we venture to quote verbatim from Hughlings Jackson. With regard to the metaphysical question of the nature of the relation of mind to nervous activities, he says:

"There are three doctrines. (1) That mind acts through the nervous system (through highest centres first); here an immaterial agency is supposed to produce physical effects; (2) that activities of the highest centres and mental states are one and the same thing, or are different sides of one thing. A third doctrine, (3) one I have adopted, is that (a) states of consciousness (or synonymously states of mind) are utterly different from nervous states of the highest centres; (b) the two things occur together, for every mental state there being a correlative nervous state; (c) although the two things occur in parallelism there is no interference of one with the other. Hence we do not say that psychical states are functions of the brain (highest centres), but simply that

they occur during the functioning of the brain. Thus, in the case of visual perception, arbitrarily simplifying the process, there is an unbroken physical circuit, complete reflex action from sensory periphery, ultimately through highest centres back to muscular periphery. The visual image, a purely mental state, occurs in parallelism with—*arises during* (not from)—the activities of the two highest links of this purely physical chain (sensori-motor elements of highest centres), so to speak, it 'stands outside' these links.

"It seems to me that the third doctrine, that of concomitance, is at any rate convenient in the study of nervous diseases. A critic of my Croonian Lectures, who in all other respects dealt with my opinions very good-naturedly, says that I state this doctrine in order to evade the charge of materialism. It, or an essentially similar doctrine, is held, so far as I can make out, by Hamilton, J. S. Mill, Clifford, Spencer, Max Müller, Bain, Huxley, Du Bois-Reymond, Laycock, Tyndall and Hermann. The critic referred to says that the doctrine of concomitance is Leibnitz's 'two clock theory.' It may be; it matters nothing for medical purposes whether it is or is not. The evolutionist does not, however, invoke supernatural agency. As Fiske says, 'The assertion of the evolutionist is purely historical in its import, and includes no hypothesis whatever as to the ultimate origin of consciousness; least of all is it intended to imply that consciousness was evolved from matter.'

"The doctrine of concomitance will seem unsatisfactory to those who seek an explanation of mental states. But no explanation is intended in any part of this paper. Supposing the account given of the constitution of the 'organ of mind' to be more thorough and quite accurate, it would be no explanation of the mental states correlative with its activity. The second doctrine seems to give an explanation, or rather complacently assumes that there is nothing to explain. It, like the two others, is a metaphysical doctrine, although I imagine some holders of it would consider it a very realistic and most practical statement of facts. To merely solidify the mind into a brain, is to make short work of a difficult question. And if we go on talking of the 'brain-mind' essentially in the same way as the popular psychologist does of the mind, 'emotional centres,' 'volition producing movements,' &c., we help nothing in a scientific study. Further, supposing the doctrine of crude materialism be true, it does not go far enough. For to give a

correct materialistic account of mind—I mean, granting for the moment that such an account can be given—is not to give an anatomical account of brain, which is to show what parts of the body it represents, and the ways in which it represents them.”

If the doctrine of the concomitance of mind and nervous activities be accepted, the next question that arises is as to the range of the concomitance. This has been already referred to. In a sense the whole body is the organ of mind, and Lewes considered that some degree of consciousness attended activities of even the lowest centres. Hughlings Jackson would accept this view only in a modified form. He considers, as we have stated, that the highest centres as previously defined, are the true organ of mind, but he admits that activities of the lower centres, unaccompanied by psychical states may determine activities of the highest centres which are accompanied by psychical states. These prior activities are, however, states of the nervous system, not states of mind. He admits faint and vivid states of consciousness arising in concomitance with activities of, respectively, the more organised, and the less organised layers of the highest centres, but the expression “unconscious states of mind” to him involves a contradiction, consciousness and mind being to him synonymous terms.

From the above it will readily be understood that we have no intention of showing how the mind is *evolved from* the body. States of mind arise in relation with certain activities of the highest nerve centres. Emotions, for example, arise in connection with activities of the periphery re-re-represented in the highest centres. Fear is the mental counterpart of certain activities of practically every part of the body. These activities, for example, perspiration, urination, &c., are represented for ordinary mental purposes, as Hughlings Jackson puts it, in the lowest centres, are re-represented in the middle centres, and are re-re-represented in the highest centres. It is in connection with this last representation that the emotion of fear arises. It would be a breach of the principle laid down to speak of emotional centres, of a fear centre for example. What we do really have is parts of the highest centres re-re-representing those activities which accompany, are the physical side of fear. These centres follow the rule of evolution from the most organised to the least organised, from the most automatic to the most voluntary, or more accurately, and avoiding the con-

fusion we have indicated, from the most automatic to the least automatic.

In considering insanities with the view of classifying them as dissolutions, we have, ready to hand, what we may term an experimental insanity, namely alcoholic intoxication, experimental and therefore free from some of the complicity of ordinarily developed insanity. When a dose of alcohol is taken it produces certain immediate effects on mouth and stomach, with which we are not at present concerned. It is then absorbed into the circulation and passes to the nervous system. Here its effect is a reversal of the process of evolution, a dissolution, and that too in most regular order from the highest part of the highest centres down to the lowest. At first the actions which constitute conduct are apparently normal, the only change being an increase of spontaneity. The “nerve currents flow more freely,” and the condition might be supposed compatible with merely a greater physiological activity from better blood supply. More probably however it means the removal of a thin layer of the highest centres, of the very last evolved portions of the highest centres. Such a removal implies two things; first, negatively, the loss of certain faculties, or more definitely of certain impressions and movements, re-re-represented in this layer; and secondly, positively, it means that lower more organised portions of the highest centres are “let go,” and there is consequently a more ready reaction to surroundings. Dissolution now passes lower, provided the dose has been large enough, and we have the verification of two proverbs, the Scotch proverb, “When the wine is in, the wit is out,” and the Latin proverb, “In vino veritas.” The “wit,” that is “out,” is that part of the mind associated with the activities summed up in *conduct*. (Compare: “At his wit’s end.”) The “veritas” that appears is the lower, more organised part of the man’s nature, which in ordinary circumstances is covered, and inhibited by the later developed. These more organised activities may be very different indeed from the higher developments. The silent man becomes talkative, the cautious man bold, the politic and quiet man offensive and indiscreet, the miser spendthrift, and the religious and continent man blasphemous and lecherous. These phases are not “excited by alcohol,” they are parts of the man’s nature, his lower nature if you so please, exposed to view by the denudation effected by the alcohol, released from the control of higher centres which have held them in leash. According to the form and amount

of the alcohol taken on the one hand, and the relation of the different levels in the individual upon the other, he will pass through a stage of excitement which may amount to violent alcoholic mania, or he may gradually become feebler and feebler, more and more drowsy. Co-ordination first of the finer, and then of the grosser movements is lost, and ultimately he lies completely paralysed in a state of coma, the sole activities remaining being those of respiration and circulation, the first evolved, the simplest, most organised, most automatic of all activities. Dissolution can go only one step lower: respiration and circulation cease, and death closes the scene.

In his suggestive work on "Sanity and Insanity," Dr. Charles Mercier says: "There is no form of insanity that may not be simulated by a case of drunkenness; and when it is not known, from other sources of information, that these manifestations are due to drink, no expert in the world, however skilful, could distinguish between the insanity that is due to alcoholic poisoning, and the insanity that is due to other causes." In the same work Dr. Mercier discusses the "recurring insanity" of sleep and the prolonged insanity of natural senile decay. These, also like alcoholic intoxication, are "insanities" of the normal organism, and their study throws much light on the insanities of the morbid organism. The dissolutions of sleep and of natural old age are as a rule uniform, affecting all parts of the nervous system, in the former rapidly, in the latter slowly, and in the reverse order of evolution as in the case of alcohol, that is to say, from the highest to the lowest, from the least automatic and organised to the most automatic and organised. And with this dissolution of the highest activities of the nervous system go, *pari passu*, the concomitant mental faculties shown in life and conduct, rapidly in the former, slowly in the latter. Occasionally in sleep the dissolution is not uniform. As Dr. Mercier puts it, "instead of the whole of the highest regions being gradually, uniformly, and equally submerged beneath the flood of inactivity, islets are left outstanding which still retain more or less of irregular activity, while all the regions surrounding them are at rest." The activity of these islets is very various, in some cases feeble, accompanied by the vague unremembered dream, in others stronger, accompanied by the vivid dream which is remembered on waking, and in others stronger still, giving rise to the actions more or less

sued to the environment, which constitute somnambulism.

Dr. Mercier's views on the constitution of the nervous system and its relation to mind practically coincide with those of Hughlings Jackson, and in his application of these views to the classification of insanity he has materially advanced our knowledge of the subject. In any such classification according to dissolution, we have to consider first, the area and depth of the nervous system affected, secondly, the rate of dissolution, and lastly, the uniformity or otherwise, of the dissolution. Dr. Mercier's classification on these lines may be accepted as the best attempt at a natural classification of insanity that we at present possess. He defines insanity as disorder of the highest regions of the nervous system, and divides it according as it affects (1) the visceral circulation of nervous energy, the large system concerned with the nutritive processes which form the massive basis or background of our consciousness; or (2) the outer circulation of nerve energy, the system concerned with the adjustment of self to surroundings. (1) Under the first head we have either reduction or excess of tension, giving rise to simple melancholia on the one hand, or simple exaltation on the other, the one characterised by a pervading sense of utter misery, the other by a sense of well-being. In each of these in consequence of irregularity of dissolution there will almost always be delusions of self owing to uncontrolled islets of activity comparable to those that give rise in sleep to the phenomena of dreams. The melancholiac explains his wretchedness by the fact that he is eternally damned, or that he is persecuted in various ways by his relatives. The general paralytic on the other hand considers himself the strongest man on earth, or believes that he is possessed of millions of pounds, that he is the Prince of Wales or the Deity. The condition of simple exaltation present in general paralysis of the insane is exactly comparable to the first stage of alcoholic intoxication of which we have already spoken, and may, as in that condition, be accounted for either by increased vascular supply such as precedes inflammatory change, or more probably by the removal through dissolution of a thin layer from the last evolved levels of the highest centres. Dr. Mercier classes under this head delusions of the whole self without alteration of the feeling of well-being, cases where the patient thinks himself dead, or in another world, or two quite different persons. (2) Under the second head we have failure of nerve

action which may be either uniform and proportional as in old age, giving rise to dementia, or which may be confined to certain areas, giving rise to delusions of relation to surroundings, and if accompanied by overaction of areas left uncontrolled will give rise to mania. But mania and suicide are not to be regarded as particular forms of insanity. They are incidents in various insanities. Mania depends chiefly upon the rate with which dissolution takes place. If the dissolution is gradual, leaving time for adjustment, there will be little tendency to mania, but if it takes place rapidly with no dissolution of lower levels, mania will certainly result. The occurrence of suicide is much more difficult of explanation. The tendency to it is greatest in melancholia, and especially where the subject of distress is the soul rather than the body. To some it is doubtless the natural way of escape from the intolerable misery they suffer, but in other cases this explanation seems insufficient, and Dr. Mercier would explain it as an abnormal development of the self-sacrificing spirit seen in parents and lovers.

We have now to return to the subject of "epilepsy proper," deferred as to its mental relations until this point. We have seen that Hughlings Jackson considers the disease to be the result of a discharging lesion involving the highest centres, the anterior and posterior parts of the cerebral hemispheres, and we have also seen that these centres are on the one hand a sensori-motor mechanism, representing movements and impressions in their most complex combinations, and are on the other hand the organ of mind, in connection with whose functioning the phenomena of consciousness arise. Such a discharging lesion may therefore be expected to manifest symptoms on both sides, sensori-motor and mental, and it is so. In the ordinary gross form of epileptic seizure the patient suddenly falls down absolutely unconscious, and is universally convulsed, first rigid in tonic spasm, then jerked in clonic spasm. The "organ of mind" is for the time thrown completely out of function by the discharge that has taken place in it, and which has extended downward through middle and lower centres. At this period the patient seems to be and is on the very verge of death, dissolution has reached the very lowest level compatible with life. Only those centres concerned with respiration and circulation are intact, and even these in most cases are gravely disordered, and in some rare cases are actually involved for so long a time that death follows. Generally,

however, the spasm of the respiratory muscles, and the cardiac irregularity soon cease, the clonic spasms of the trunk and limb muscles subside, and the patient lies motionless and comatose. He is now universally paralysed except as to his heart, vessels, and respiratory apparatus, just as he was universally convulsed a few seconds before. The sensori-motor mechanisms above these are for the time completely exhausted of energy, as completely for practical purposes we may say as if they had been ploughed up by a hæmorrhage. The reflexes are abolished, and the limbs are flaccid. In this paralysed and unconscious condition the patient lies for a variable length of time, then slowly nervous energy accumulates again in the exhausted centres, and accumulates in the order of evolution, from the simple to the complex, from the more automatic and organised to the less automatic and less organised. The disturbed respiration and circulation become regular, simple movements of the limbs are performed, the reflexes are restored, for a time indeed, exaggerated because of the balance of control by the higher centres not being established. But muscular movements are feeble and ill co-ordinated, and the mental condition dazed. The patient does not move spontaneously, and he does not know where he is. Gradually he recovers consciousness, begins to act and react, and either returns to his normal state except that he feels confused and ill for some hours; or more frequently the exhausted centres pass into a condition of natural sleep, from which the patient awakes practically well.

Such an attack of major epilepsy presents, it will be seen, a marked contrast to an attack of Jacksonian epilepsy. Here the patient is both unconscious, and also still and helpless. The usual explanation of his lying still and helpless is that he is unconscious, an explanation regarded by the "practical" man as perfectly satisfactory. He sees no difficulty in explaining a fact in the sphere of matter by a fact in the sphere of mind, and does not realise that even as a verbal explanation it will not bear inspection; a delirious fever patient is unconscious, but is by no means still. A discharging lesion commencing in the highest centres, in the anatomical substratum of mind, and rapidly extending through these, has passed down through the middle to the lowest centres, causing in these an immensely powerful and irregular liberation of energy, which leaves them exhausted. It is an intensely rapid dissolution or reversal of evolution, an exhaustion of

centres in connection with which the phenomena of mind have been evolved, evolved as we have seen in a relation, not of causation, but of parallelism or concomitancy. It is a mode of partial, or it may be of complete, death. The recovery is a re-evolution. If this be what happens in epilepsy, we might expect that the dissolution would extend to the most various levels in the nervous system, that it would at one time destroy only the very thinnest superficial layer, while at another it would denude and disintegrate, as we have seen, right down to the bedrock from which our nervous system is developed. And it is so. In cases of *petit mal* or minor epilepsy, we have dissolutions of the most various depths. From the slightest attack in which a fleeting shadow only seems to cross the patient's face, a momentary pallor, a momentary fixation of the eyes as if in reverie, a momentary check in conversation, from such a case as this we have a gradation of cases down through attacks, in which the patient is unconscious and slightly convulsed, but does not fall, in unbroken sequence of severity to the gross major epilepsy already described. In minor epilepsy, however slight, there is always defect of consciousness, more or less, in different cases, but never absent, marking it off in this way from Jacksonian epilepsy. The loss of consciousness may be no greater than that produced by a moderate dose of alcohol, sufficient to cause temporary dissolution of the very highest level of the highest cerebral centres. The point is that there is loss.

From what has been said above of the hierarchy of nervous centres, it follows that in these partial dissolutions of the highest centres in epileptic seizures, the unaffected lower levels are "let go," and will overact in an irregular and uncontrolled fashion. As a concomitant of this excessive cerebration, there occurs excessive mentation, irregular and uncontrolled, or in other words, insanity. And as would be expected, this insanity varies immensely, from merely odd or eccentric actions—that is, actions not in perfect accordance with environment—to homicidal mania of the most violent type. These epileptic insanities include all forms just as alcoholic insanities include all forms, from acute mania to simple melancholia, from delusional insanity to dementia.

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[References. — Hughlings Jackson: (1) "Remarks on Evolution and Dissolution of the Nervous System," *Journal of Mental Science*, April 1887. (2) "Remarks on Evolution and Dissolution of the Nervous System," Bale & Sons, 1888. (3) "On Post-Epileptic States," *Journal of Mental Science*, October 1888. (4) "Remarks on the

Diagnosis and Treatment of Diseases of the Brain," *Brit. Med. Journ.*, July 1888; and other papers.]

EPILEPSY, ABORTIVE (*ἐπιληψις*, a seizure, an attack, from *ἐπιλαμβάνω*; *abortire*, to miscarry). An epileptic seizure which does not proceed to loss of consciousness.

EPILEPSY, ACUTE (*ἐπιλαμβάνω*; *acutus*, sharp). A term applied to the convulsions called eclampsia.

EPILEPSY, ALCOHOLIC (*ἐπιλαμβάνω*; alcohol, from *al*, the; *kohol*, anything refined). Epilepsy caused by chronic excess in alcoholic drinks. It is often hereditary, the sufferers are prone to delusions, and, though the convulsions are primarily due to the toxic influence, they may persist when the latter is lessened or removed by treatment.

EPILEPSY, AUDITORY (*ἐπιλαμβάνω*; *audio*, I hear). Epilepsy said to be dependent on disease of the middle ear.

EPILEPSY, CEREBRAL (*ἐπιλαμβάνω*; *cerebrum*, the brain). A term proposed by Marshall Hall for that form of epilepsy in which only the first symptom (called by him sphagiasmus, or the muscular contraction of the neck) occurs; used also as a synonym of the *petit mal* of the French.

EPILEPSY, CORTICAL (*ἐπιλαμβάνω*; *cortex*, the bark or outer covering). A synonym of Jacksonian Epilepsy, from the position of its exciting cause in the brain cortex.

EPILEPSY, DIURNAL (*ἐπιλαμβάνω*; *diurnus*, daily). Epilepsy in which the fits occur chiefly in the daytime.

EPILEPSY, FEIGNED (*ἐπιλαμβάνω*). In simulated attacks the severe typical seizure is usually feigned. There is no biting of the tongue, no relaxation of the sphincters. The pupils are not dilated nor oscillating, the iris is not insensible to light, the skin during the false seizure is hot and perspiring. The malingerer, moreover, overacts the convulsive stage, is careful in not hurting himself by the fall, and there is evidence of sensory perception. The absence of the post-epileptic stage, the artificial frothing at the mouth, and the non-appearance of albuminuria, a frequent post-epileptic condition, will help in determining whether the attack is simulated or not.

EPILEPSY, GASTRIC (*ἐπιλαμβάνω*; *γαστήρ*, the belly). Epilepsy arising from some irritation in the alimentary canal.

EPILEPSY, HEMIPLEGIC (*ἐπιλαμβάνω*; *ἡμι*, half; *πληγή*, a stroke). Epilepsy, generally of syphilitic origin, in which one-half of the body or one limb only is convulsed.

EPILEPSY, HYSTERICAL (ἐπιλαμβάνω; hysteria, *q.v.*). (See HYSTERO-EPILEPSY.)

EPILEPSY, IDIOPATHIC (ἐπιλαμβάνω; ἴδιος, peculiar; πάθος, an affection). The ordinary form of epilepsy, in which no organic cerebral lesion is found after death.

EPILEPSY, INFANTILE, ACUTE (ἐπιλαμβάνω; *infans*, an infant; *acutus*, sharp). A synonym of Infantile Convulsions.

EPILEPSY, INTESTINAL (ἐπιλαμβάνω; *intestina*, the bowels.) An old term for infantile convulsions depending on irritating matters in the intestines.

EPILEPSY, JACKSONIAN.—Attacks of an epileptic character distinct from those of epilepsy proper, which present the following symptoms: Commencing unilateral spasm in hand, face, or foot, varying in range and classified by Hughlings Jackson as monospasm, hemispasm, or where the other side of the body or part of it is convulsed. The spasm progresses in a definite direction, when limited or nearly limited to an arm it usually goes up. If in hemispasm the spasm begins in the hand, it goes up the arm and down the leg; if it begins in the foot it goes up the leg, and with many exceptions down the arm. The more suddenly the spasm starts and the more rapidly it begins to spread, the greater the range ultimately attained and the shorter the seizure. Consciousness is usually unaffected in limited convulsion of a limb, side of face, or even one side of the body, it usually ceases when the eyes and head begin to turn to the side first convulsed. The more sudden and rapid the spasm the less is the range attained before consciousness is lost. In the severest of these epileptiform seizures consciousness ceases late in the paroxysm, while in severe epilepsy proper it ceases at the onset or very early. Temporary paralysis or partial aphasia may follow the seizures. It is chiefly met with among children, and due in the main to hereditary syphilitic deposit in or degeneration of the brain cortex or of the brain substance in its immediate neighbourhood, especially the part supplied by the middle cerebral artery. (Roberts, Gowers, &c.) (See EPILEPSIES AND INSANITIES.)

EPILEPSY, LARVATED (ἐπιλαμβάνω; *larvatus*, hidden). (See EPILEPSY, MASKED.)

EPILEPSY, MANIACAL (ἐπιλαμβάνω; *μανία*, madness). (See EPILEPSY AND INSANITY.)

EPILEPSY, MASKED (ἐπιλαμβάνω). The Anglicised form for a term applied

by Esquirol and Morel (*épilepsie larvée*) to those cases of epileptic seizure in which there is imperfect loss of consciousness with automatic action. The patient does not fall down, appears dazed and stupid for a few minutes, and occasionally performs in an automatic manner some actions of which he subsequently retains no recollection. There appears to be some doubt as to whether this condition is always a true epileptic one, or the automatism of a post-epileptic state; the majority of instances in which the automatic acts are extremely complex belong in all probability to the latter class. Anger, violence, or some other emotion may take the place of the usual automatic act. Instances of indecent exposure, violent assault and even murder, have been recorded as having happened during this minor form of epilepsy. (Fr. *épilepsie larvée*.) (See EPILEPSY AND INSANITY: POST-EPILEPTIC AUTOMATISM.)

EPILEPSY, MATUTINAL (ἐπιλαμβάνω; *matutinus*, belonging to the morning). Epilepsy in which the seizures take place only in the early morning.

EPILEPSY, MENTAL (*mens*, the mind). Either the mental explosion which takes the place of a fit, or the condition of post-epileptic automatism described by Hughlings Jackson.

EPILEPSY, MENTAL, INTERMITTENT (*intermitto*, I go between, pause). Echeverria's term for what is known as larvated epilepsy.

EPILEPSY, NOCTURNAL (ἐπιλαμβάνω; *nocturnus*, belonging to the night). Epilepsy in which fits occur only or chiefly during night.

EPILEPSY, PARTIAL (ἐπιλαμβάνω; *pars*, a part). Epilepsy in which the convulsive seizures are limited to one-half of the body, or to one limb.

EPILEPSY, PSYCHIC (ἐπιλαμβάνω; *ψυχή*, the soul). A name given to the periodic paroxysmal occurrences of psychic disturbances, mainly mental or sensory illusions, occurring without or rarely with muscular spasm, and accompanied by complete forgetfulness of the circumstances of the attack. Sometimes used as a synonym of Masked Epilepsy (*q.v.*).

EPILEPSY, REFLEX (ἐπιλαμβάνω; *reflecto*, I bend back). Epilepsy resulting from reflex irritation of nerves—*e.g.*, neuromata, cicatrices, tumours, &c. involving peripheral nerves, intestinal worms, ovarian or uterine irritation, &c.

EPILEPSY, RENAL (ἐπιλαμβάνω; *ren*, the kidney). May occur in chronic renal disease apart from uræmic symptoms.

EPILEPSY, SPINAL (ἐπιλαμβάνω; *spina*, the spine). A term proposed by

Marshall Hall for the *grand mal* or complete form of epilepsy. The form in which sphagiasmus (or muscular contraction of the neck), odaxismus (or bitten tongue), and laryngismus (or spasm of the glottis), succeed each other in regular order. Also a name given by Frank to those cases of epilepsy, which are dependent on or rather are accompanied by, a definite cord lesion.

EPILEPSY, SPINAL, PROVOKED

(ἐπιλαμβάνω; *σπρίνα*; *προνοσο*, I summon or call before). A term for the condition known as ankle-reflex.

EPILEPSY, SYMPTOMATIC

(ἐπιλαμβάνω; *σύμπτωμα*, an occurrence). Epilepsy caused by, or a symptom of, some other malady.

EPILEPSY, SYPHILITIC (ἐπιλαμβάνω; *σύν*, together with, *φιλέω*, I love).

Epilepsy dependent on intra-cranial syphilis—*e.g.*, a meningeal growth or chronic inflammatory deposit. Fournier believes that the syphilitic poison during the secondary period has a direct action on the nervous system, and may cause pure neuroses, epilepsy among the number. Epilepsy of the idiopathic type may occur in the subjects of inherited syphilis. (See EPILEPSY, JACKSONIAN.)

EPILEPSY, THALAMIC (ἐπιλαμβάνω; *θάλαμος*, a bed; the optic thalamus).

A form of epilepsy supposed to be due to lesion of the optic thalamus. The patients are said to have loss of consciousness without muscular spasm during the seizure, and special sense auræ, such as visual or auditory hallucinations.

EPILEPSY, TRAUMATIC (ἐπιλαμβάνω; *τραυματικός*, relating to wounds).

Epilepsy resulting from injury to the head whether causing symptoms of coarse cerebral injury or not.

EPILEPSY, VASO-MOTOR (ἐπιλαμβάνω; *vas*, a vessel; *κινέω*, I move).

A term applied to cases of epilepsy in which the vaso-motor centre, and not the motor cortical centres, is supposed to be solely or chiefly implicated; the seizures are marked by loss of consciousness but not by muscular spasm, by elevated temperature and soft, full, quick, pulse.

EPILEPSY, ZONE OF. (See EPILEPTOGENOUS ZONE.)

EPILEPSY AND INSANITY.—The

general relationships of epilepsy are more fully considered by Dr. James Anderson (EPILEPSIES AND INSANITIES), but it remains for us to trace more particularly the relationship between epilepsy and mental disorder, and we shall, as far as possible, trace not only the epileptic relationships existing between certain definite forms of mental disorder and epi-

lepsy, but also refer to morbid mental symptoms which in one way or another are related to the epileptic state. Epileptic cases seem to us to be naturally divided into two chief groups, those in which the epileptic symptoms depend upon a general nervous instability and those in which the nervous instability depends upon some local brain lesion, degenerative or traumatic. To us the consideration of the first class only belongs, though we may preface our remarks by saying that we believe mental disorder may result from either of the forms of epilepsy and in both may have similar characters. First, epilepsy is related to the other neuroses by origin. The same causes which produce insanity may give rise to epilepsy alone, or epilepsy with insanity. Thus, alcohol, head injury, and insanity may each start epilepsy. An epileptic parent may have epileptic, idiotic, depraved, maniacal or melancholic offspring. On the other hand, insane parents may have insane, idiotic, or epileptic offspring. We have frequently met with cases in which one member of a family has suffered from epilepsy, while another has been insane or idiotic. In a case of twins, one was insane while the other suffered from epilepsy. Epilepsy with a tendency to nervous degeneration and mental disorder, may result from nervous injury to the parent or injury to the individual himself.

We have next to consider the **forms of mental disorder** depending chiefly on epilepsy. In children of neurotic parents it is common to meet with unstable nervous systems, which seem to be ready, at the least provocation, to start into convulsions, so that convulsions in infancy are specially common in such families—these convulsions may be the starting-point of true epilepsy—the convulsions becoming, as it were, habitual. The result of epileptic fits in childhood is likely to be arrest of further mental development or interference with that development. It seems to matter but little what the exciting cause of the convulsions is, if their repetition becomes more or less regular, and, as we shall again have occasion to point out, the danger to the higher nervous centres seems to be in direct relation with the frequency of the convulsive seizures, whether they be severe or mild. In a separate part of this paper will be considered what has been called *epileptic idiocy*, and it therefore suffices for us to say that epilepsy is a common cause of mental enfeeblement in childhood. Epilepsy is also a most important factor in the production of various other forms of insanity. The Commissioners in Lunacy

report in 1889 that of 14,336 patients admitted during the year 1887 into the various asylums and licensed houses in England and Wales, that there were 1294 epileptics, of whom 777 were men and 517 were women, so that 9 per cent. of the insane patients brought under treatment in 1887 were epileptics. It does not follow, of course, that the insanity depended in all cases upon the epilepsy, for we must recognise that the same cause which produces epilepsy may produce insanity in the individual, as we have already seen they may in the family.

Insanity, as associated with epilepsy, may be conveniently considered, first, as to the relationship of the fit to the insane outbreak; and, secondly, as to the character of the attack itself.

The insanity may precede the epileptic fit, and may exhibit itself in two or three different ways; thus, there may be partial or complete insanity; there may be merely sensory perversions of one kind or another preceding the convulsive seizure and the state of unconsciousness. The aura, so to speak, may be a hallucination; thus always before the onset of an epileptic seizure a patient may hear a sudden explosion of a terrifying character, a threatening or warning voice, have a bad smell, see a flash of light, or feel a shock like that produced by a galvanic battery. The same hallucination may always precede the same kind of fit, and as it is common in Jacksonian epilepsy to meet with patients in whom a definite motor act precedes the fit and the unconsciousness, so in the cases to which we are referring, there may be an antecedent sensory hallucination. In some cases a mixed condition, which approaches what has been called by Hughlings Jackson a "dreamy state," precedes the fit, and it is important to recognise that the dreamy state and the hallucinations and illusions, which may have their origin in that state, may cause important actions to be done during the later or automatic period.

Beside, or apart from the hallucinations, though we should say generally depending upon the sensory perversions, delusions may arise, so that patients in the dreamy state, or in a state allied to it, may believe that they have been brutally ill-treated, and that friends or others have injured them. Hence, delusions and false accusations may occur before, as well as after, an epileptic fit.

In the next place, occasionally one meets with patients who have brief attacks of insanity, generally of a maniacal type before a fit, which seems to act as a nerve-

storm to clear the mental atmosphere. Thus, a young lady recently under our care is amiable, pleasant, and in every way agreeable till within a few days of an epileptic seizure, when she becomes troublesome, restless, inclined to quarrel; she is sleepless, and at times noisy at night. This period of restless excitement lasts only a few days, and is followed by an epileptic fit, which always occurs in the night, to be followed by a short period of languor, which ushers in a return of mental calm. It is still a question whether epilepsy is ever completely replaced by mental disorder, whether, in fact, there is such a disease as masked epilepsy. The feeling at present is pretty general that in all cases where the epilepsy appears to be masked, the truth is, that a very slight fit is followed by a considerable amount of mental disturbance, and in those cases in which the mental disorder is well marked, and especially where automatism is exhibited, the preceding fit is generally but slight.

However, there are certain cases of Moral Insanity in which there are no very clear evidences of convulsive seizures at first, though these may develop later, and with these occur certain impulsive and destructive acts which, in many particulars, resemble in character the purposeless, yet energetic, muscular acts which form part of an epileptic fit, and in the two classes of cases similar discharges of nerve force along paths of least resistance take place, and may become habitual by recurrence; the difference is slight, whether there be a discharge of motor force, which is altogether purposeless, or whether there be a discharge, which, though unconscious, is still along certain definite lines, which have been by use established. Such may be cases of epileptic insanity.

We shall consider next the cases of so-called masked epilepsy. In these a fit, greater or less in degree, may or may not be followed by sleep, and may then be followed by fully organised and definite unconscious automatic acts. Many such cases are described by French authors, and more recently cases have come under notice in England and have been recorded. In some of these the acts begun before the onset of the fit have been continued in a more or less altered direction after the temporary loss of consciousness. This was well marked in the case described by Dr. Orange, of Broadmoor, of the mother who, while cutting bread for her family, having her baby on her arm, became momentarily unconscious. On return to consciousness she proceeded in an automatic way to use the knife, not upon the loaf

but upon her child, whose arm she amputated. We have recorded in *Brain*, the case of a patient in Bethlem, who, while in our presence, had a slight fit of unconsciousness, followed by a period of automatism, during which he performed complicated movements, adapting himself properly to his surroundings, and yet at the end of some time, on his recovery, was completely without knowledge of any of the acts which he had so carefully performed. In this case it was said that his relations had been able to get him to sign cheques, and do other things with his property, while he was unconscious. As we have already said, the fit may be slight, and the consecutive act may have been started before the onset, or, it may have been initiated by a "dream condition" associated with the onset of the fit. In some cases during the masked epilepsy there is a constant and exact repetition of words or acts in each fit, so that a lady, wherever she happened to be, would become momentarily pale, turn her head in one direction, and pour out a string of about twenty words, always the same words in the same order, and then she would return to the point in her act or conversation from which she had broken off. In some other cases it seems possible that the post-epileptic stage of unconsciousness may be more prolonged. It seems as if the machinery were suddenly turned into another direction in which it goes on working definitely in relation to its environment, for a time, to return to the old or normal state of life and mind with complete forgetfulness of the intermediate period. It is possible that some cases of double consciousness may be thus explained, but we are ourselves very doubtful as to this.

Besides masked epilepsy, fits, whether large or small, may be followed by distinct attacks of insanity, and all asylums can point out among the most violent and dangerous and destructive patients those who are subject to epileptic mania. These patients are almost always weak-minded, and permanent residents in asylums. The fits may be followed by more or less prolonged periods of sleep, the patient awaking from sleep in a condition of restless mania with ideas of persecution or ill-treatment. These attacks of mania may follow all the epileptic fits, or may only follow certain fits, but each recurrence of maniacal excitement seems to be similar in character, though more variable in length than is common with the conditions of masked epilepsy.

Epilepsy, followed by insanity, may occur in infancy, but is more common in adolescence and middle life. If the fits

are frequent, or occur in young or physically unstable persons, the prospect of a rapid development of dementia is all but certain. On the other hand, epilepsy may occur for many years in adults, who are otherwise healthy, without any marked mental deterioration. The frequency of the fits and of the maniacal outbreaks are to a great extent the gauge of the mental deterioration which occurs. It has been pointed out that most of the chronic epileptic patients have a special aspect, and though this appears to be generally true, there are many exceptions to be met with.

With the maniacal attacks, as we have already said, there is a very great tendency to violence, both homicidal and suicidal. The patients in many cases seem to believe themselves to be injured by others, or in consequence of false sensory impressions, they believe that they are persecuted in one way or another, or they believe that they are surrounded by demons or enemies from whom it is their duty to escape. In some cases the fit is followed by melancholic rather than maniacal symptoms. As a rule, the melancholia is associated with similar ideas of persecution, so that in one case the patient believes himself to be persecuted, and takes revenge upon the nearest supposed enemy, while in the other, he broods over his unhappy condition. Between the fits of insanity and epilepsy the patient will be noticed to be losing mental power, so that his memory becomes weak, his power of attention, application and will reduced; his power of adapting himself to his surroundings, or performing his old work, is likewise lessened; his appetite may be good, even increasing, so that he may become gross in body, while he becomes weak in mind and self-control. As a result, his habits become rather bestial and his temper uncertain. The period of restless weak-mindedness passes more or less rapidly into one of greater mental weakness with fair general health. It is in this state that such patients greatly resemble one another, and give rise to the idea that there is a special epileptic aspect. Such patients may live for many years, though the average life of these patients is below that of the ordinary chronic lunatic. As to treatment, it seems almost certain that medicinal treatment with the idea of reducing the fits does little or no good, and that when we are dealing with a case of chronic epilepsy and insanity, the reduction of fits does not at all mean that there will be any proportionate improvement in mental power.

All degrees of mental deterioration may be observed among epileptics, from the slightest impairment of memory to paroxysms of furious mania—the most characteristic earlier symptoms are irritability, impulsiveness, and defect of memory, especially of recent events. Another special character of the insanity of epileptics is a manifestation of strong religious tendencies, and it has been recalled that among some of the mystic religious teachers, who have had hallucinations of their senses, epilepsy was also present.

Hallucinations of the senses, as we have already said, are commonly associated with epilepsy, so that preceding a fit, during a fit, or after a fit, there may be hallucinations, and we believe that the hallucinations frequently are of what we should call an explosive nature; thus, there may be heard explosions, detonations and the like, while flashes of lightning or blazes of light and colour may appear before the eyes, and puffs of bad vapour may be complained of as affecting the smell. This is distinctly interesting when we consider the nature of the motor symptoms which may also be described as often explosive. Besides the hallucinations, we have already referred to the fact that in epilepsy it is common to meet with delusions of persecution; suicidal acts are not nearly so common as are impulsively homicidal ones, and the nature of these impulsive attacks is noteworthy, for during them the most brutal murders and mutilations occur. There seems to be a letting loose, as it were, of a demon of destructiveness who, having once begun to destroy, knows not when to stop.

There is another relationship between the epileptic state and mental disorder which, we think, deserves further notice. We have already said that in chronic insanity with epilepsy the mere treatment of the fits is of little or no avail as far as mental disorder is concerned, and it is noteworthy that even in some younger and less chronic cases, the treatment of fits does no good if not harm to the patient. We have met with several instances of patients who have suffered from slight attacks of epilepsy, who, having been relieved or cured of the fits of convulsions, have from that time begun to degenerate mentally, and we have elsewhere described cases in which epileptiform, if not epileptic, fits have been followed by mental improvement, for though as a rule with each recurring attack of convulsions, one looks for some slight increase in the nervous instability, yet from some hitherto unexplained cause,

severe convulsions may occur during some phases of insanity, which may be followed by recovery.

Epilepsy must not be confused with the so-called epileptiform fits of general paralysis of the insane, for though one frequently hears of epilepsy developing at middle life, and running a rapid course ending in paralysis and death, yet one must insist upon the fact that there is all the difference possible between general paralysis of the insane with fits, "convulsive or congestive seizures," and epilepsy, which may be a chronic disease. It is further noteworthy that epilepsy is very rarely followed by general paralysis of the insane, that the conditions which give rise to the one do not seem to be likely to produce the other, and that though the epilepsy to which we are referring is a distinct neurosis, general paralysis of the insane, on the other hand, is not itself a true neurosis, though it may start it. The children of general paralytics are not only liable to insanity, but to epilepsy, and we believe it will be found that there is a large class of epileptics whose parents had coarse brain disease, such as that due to general paralysis of the insane, to syphilitic and alcoholic degeneration; hence we have to deal with epilepsy which depends upon insane inheritance, that which depends on inheritance from damaged or degenerated brains, and that which depends upon local degenerations in the individual himself.

Besides insanity, as already described, it has been pointed out that chronic epileptics may assume peculiar mental aspects and that there are two well-marked groups of these, the first containing the more dangerous class, those who are suspicious and irascible, while the others are mild, weak and sheepish. Both conditions are the results of partial mental weakness. In the one the patients are nervous, irritable, and easily roused, while in the other they are weak and unimpressionable. Epilepsy has been believed to be associated with genius from past time, and many leaders in action, such as Julius Cæsar and Napoleon, and in thought, like Mahomet and Savonarola, have been credited with this disease, but we are inclined to think that though these may have had occasional fits of one kind or another, they do not deserve to be classed as chronic or habitual epileptics.

Epileptic Idiocy.—One of the clinical groups formed by Dr. Ireland bears the above name, and he applies it to those cases where epilepsy seems to be the cause of mental obtuseness, for it ought

to be kept in mind that congenital idiots are now and then subject to epileptic fits which need not have any marked effect upon their intelligence, and may be looked upon only as complications. Epilepsy, he says, is one of the commonest causes of idiocy. If epilepsy has caused the faculties to become impaired before the age of seven, he prefers to consider the patients as epileptic idiots. Hereditary epilepsy manifests itself earlier than non-hereditary epilepsy. In the epileptic attacks of idiots the fits may be great or small, and the small attacks are as stupefying as the great ones. They generally come on in these cases without warning. The cause may be fright, agitation or some bodily ailment like indigestion. Even when the fits are frequent the general health of patients of this class is in most cases vigorous, and they are physically powerful. The epileptic idiot is generally droll and eccentric. They are wild, often intractable and irritable. They approach ordinary insanity in many particulars and seem to have more intelligence than most of their companions. In a few rare cases epileptic idiots seem almost suddenly to improve, in some cases with the cessation of their fits, and in other cases with some change in the character or degree of the fits, or at the onset of puberty or some marked physical change. The probability of a complete cure of idiocy is greater in the epileptic than in any other of the classes save that of idiocy or deprivation. It must be remembered that epilepsy may occur even in children without intellectual failure, at all events, for a time. In treating cases of this kind bromide of potassium seems to have a less beneficial effect than it has in elder patients, nevertheless, as a rule, this drug does reduce the number of fits and may be tried. At the same time the mental state should be narrowly watched as to whether with reduction of fits there is any mental gain. General tonics and belladonna, and nitrate of silver have all been tried. It is not well to neglect some form of education and regular methodical exercise in this class of patient. In one case under our observation a patient who had been weak-minded and incapable of education began only to develop intellectually at fourteen, coincidentally with the outbreak of epileptic fits, these fits recurred during the next three years, by which time he had made rapid strides in his education, being abreast of lads of his own age. At this time his fits ceased and he is now in every way a healthy man. So to sum up, epilepsy may be a true neurosis by origin and by relationship. It tends to a marked degeneration of mind,

and affects the moral side of man specially. It tends to idiocy if present in infancy. It leads to rapid degeneration if occurring in youth. It may be associated with genius. It is often associated with hallucinations of a special type. It may be associated with delusions. It may be related in various ways with regular attacks of mental disorder, thus insanity may precede, replace, or follow the fits of epilepsy. There may be an attack of mental disorder of the ordinary type, or there may be a period of automatism. Chronic epilepsy, with chronic insanity, produces a very hopeless and dangerous class of insane patients, in whom some special ideas and specially dangerous impulsive attacks are present. There is a form of idiocy deserving the name of epileptic idiocy.

GEO. H. SAVAGE.

EPILEPTIC AURA (*ἐπιλαμβάνω*; *aura*, a breeze, a sensation). (See EPILEPSY.)

EPILEPTIC CHANGE (*ἐπιλαμβάνω*). The alteration in the central nervous system, not the coarse lesions sometimes found, but the supposed alteration which takes place in the cortical, medullary and frontal regions, rendering it more unstable, or liable to induce epileptic seizures on sudden irritation.

EPILEPTIC CRY. (See CRY, EPILEPTIC.)

EPILEPTIC HEMIPLEGIA (*ἐπιλαμβάνω*; *ἥμις*, half; *πληγή*, a stroke). A name given by Todd to the post-convulsive paralysis observed in some cases of epilepsy. The weakness or loss of power may be transient only and may follow unilateral or local convulsion. Robertson and Hughlings Jackson explain this by exhaustion of the nerve elements, but similar weakness often follows or accompanies slight fits, especially those in which the first and sometimes the only discharge is sensory, and it is then probably of inhibitory origin (Gowers). If fits succeed each other with great frequency the paralysis may persist during the brief intervals and be considerable in degree, but it passes away rapidly after the attacks have ceased. Loss of speech sometimes occurs after right-sided epileptic seizures and is probably also inhibitory.

EPILEPTIC IMBECILITY (*ἐπιλαμβάνω*; *imbecillus*, weak). (See IMBECILITY.)

EPILEPTIC INSANITY (*ἐπιλαμβάνω*; *in*, neg.; *sanus*, sound). (See INSANITIES AND EPILEPSIES, and EPILEPSY AND INSANITY.)

EPILEPTIC MANIA (*ἐπιλαμβάνω*; *μανία*, madness). (See EPILEPSY AND INSANITY.)

EPILEPTIC STATE (ἐπιλαμβάνω; *status*, condition). (See STATUS EPILEPTICUS.)

EPILEPTIC VERTIGO (ἐπιλαμβάνω; *vertigo*, giddiness). The vertigo occurring during a slight fit of epilepsy, ushering in an attack of *grand mal*, or taking the place of a seizure. Such vertigo is usually subjective (Russell Reynolds). There is generally loss of consciousness, the vertigo is of short duration, with usually a premonitory aura, and followed by mental dulness and not by the vomiting, tinnitus, or repeated vertiginous attacks of labyrinthine vertigo (Gowers).

EPILEPTIC ZONE (ἐπιλαμβάνω; ζώνω, a belt). (See EPILEPTOGENOUS ZONE.)

EPILEPTICISM (ἐπιληψία, from ἐπιλαμβάνω, I seize upon). Term for the condition known as status epilepticus (*q.v.*) in its most severe form—viz., that in which there is no recovery of consciousness between the attacks, the coma deepening, the pulse and respiration becoming very frequent, the temperature rising to 106° or 107° F. and the patient dying after two or three days in a state of collapse. (Althaus.)

EPILEPTIFORM CONVULSIONS (ἐπιληψία, epilepsy; *convello*, I tear). Convulsive attacks which approximate to the typical epileptic seizure. The individual features of the convulsion may closely simulate an epileptic attack, or present such a dissimilarity as hardly to be recognised as a convulsion at all. There may be no obvious convulsions, a sudden pallor and loss of consciousness being all; there may on the other hand be preservation of consciousness, together with unilateral or localised convulsions. Among the epileptiform class must be included the complex hystero-epileptic condition described by Charcot as hystero-epileptic convulsions.

EPILEPTIFORM HYSTERIA (ἐπιληψία, epilepsy; *hysteria*, *q.v.*). A condition in which paroxysms occur characterised by great intensity of the convulsive symptoms, combined with certain more or less marked features which recall the phenomena of epilepsy. (See HYSTERO-EPILEPSY.)

EPILEPTIFORM SEIZURE (ἐπιληψία). The form of epilepsy in which there is passing loss of consciousness only. Also a name given by Hughlings Jackson to attacks of an epileptic character distinct from those of epilepsy proper. (See EPILEPSY, JACKSONIAN.)

EPILEPTOGENOUS ZONE (ἐπιληψία, epilepsy; γεννάω, I produce; ζώνω, a belt). Brown-Séguard's term for the part of the

skin of the face and neck of guinea-pigs which on being irritated after partial or complete section of the spinal cord near the twelfth dorsal vertebra, produces in the course of two or three weeks epileptiform convulsions, the tendency to which may be transmitted to the offspring. Epileptogenous zones are practically unknown in the human subject: one case only is on record. (See "Proc. Med. Soc. Lond.," vol. x. p. 78, 1887.)

EPILEPTOID (ἐπιληψία, epilepsy; εἶδος, likeness). Resembling epilepsy. Also a term employed by Griesinger for a class of persons who suffer periodically and paroxysmally from migraine, vertigo, syncope, hallucinations or other functional nerve trouble.

EPILEPTIA. A corruption of Epilepsia, and used as its synonym.

EPIMANES (ἐπιμανής, raving; from ἐπιμαίνομαι, I am mad). A name given to a person during a paroxysm of insanity.

EPITHYMIA (ἐπιθυμία, desire; from ἐπιθυμέω, I long for). An old term for any natural longing or desire (Fr. *épi-thymie*; Ger. *Begierde*.)

ERETHISMUS EBRIOSORUM (ἐρεθισμός, irritation; from ἐρεθίζω, I vex; *ebriosus*, drunken). A synonym of Delirium tremens.

ERGOT OF RYE. (See ERGOTISM.)

ERGOTISM (Fr. *ergot*, the spur of a cock). Synonyms: Ignis sacer; ignis St. Antonii; Kriebelkrankheit; Raphania; morbus ruralis.)

Definition:—A disease occurring sporadically or in epidemics, induced by the use of ergot, either medicinally or mixed with food, the characteristic phenomena of which are certain definite gastrointestinal, gangrenous, and cerebro-spinal symptoms.

History and Distribution.—A disease of antiquity, ergotism has appeared as an epidemic in two distinct forms, the gangrenous and the convulsive or spasmodic, each of which in its distribution has restricted itself to definite areas. The extent of its occurrence is comparatively small, embracing certain districts within well-defined regions in France, Germany, Russia, and Sweden; occasional small epidemics, too, have occurred in North America and other parts of Europe. Epidemics of a mixed character, that is in which both forms of ergotism existed, have occurred in Belgium, France, and Germany, but, as a rule, while gangrenous ergotism has appeared most commonly in France, the spasmodic form is almost wholly confined to Germany. The gangrenous modification has also

affected animals in certain districts in America and Russia.

Ætiology.—The disease is due to the assimilation of certain cereals which have been acted upon by a fungoid growth—*claviceps purpurea*—world-wide in its distribution, which, though it affects many of the *Graminae* used as food, such as rice and maize, appears to develop its toxic effect in man only when rye (*Secale cereale*), or bromus grass (*Bromus secalinus*), is contaminated by the parasitic growth. The occurrence of epidemics is always coincident with a large development of the fungus, with a rainy spring succeeded by a dry hot summer, or where a damp and marshy ground favours its growth, and the affection naturally assumes a more virulent type in those rural districts where rye bread, &c., forms the staple food stuffs. It appears as a rule soon after the harvest, the toxic action becoming less marked if the grain has been stored for any length of time. The investigations of Kobert, who isolated from ergot of rye the active principles, *sphaecelinic acid* and an alkaloid *cornutin*, whose action he demonstrated to be respectively gangrenous and convulsive, go to prove that the variations in the symptoms of different epidemics must be attributed to the excessive development of one or other of these active principles through climatic or telluric influences. Persons living under the same hygienic and nutritive conditions are not equally susceptible, a weak or enfeebled constitution, and especially a previous attack, rendering the subject exceptionally prone to this disorder; women and children are more frequently affected than men.

Symptoms.—In acute poisoning by ergot the symptoms are primarily gastro-intestinal and vascular (vomiting, anorexia, diarrhoea, vascular contractions, cyanosis, &c.), excessive doses affecting the nervous centres later on, death ensuing from asphyxia or convulsions. In pregnant animals the uterus evacuates its contents. In chronic poisoning by ergot the gastro-intestinal lesion, though not so severe, is present, the pulse is small and tense, the skin cool and pale, and giddiness, languor, and anorexia mark the prodromal stage. Gangrene may develop, and usually takes the dry form, but the moist variety, leading to a septicæmic condition, has also been observed. In the development of the spasmodic form of ergotism there ensues a feeling of mental and physical insufficiency, languor, a lack of energy, inability to think, sensory dulness and mental torpor, with headache, drowsiness, and vertigo, and at

times excessive fornication. The occurrence of some form of mental disorder now takes place, there is a retardation in the development and flow of ideas of which the patient is painfully conscious, loss of memory, and at times euphoria. In the slighter forms of the affection a lack of sympathy and interest, indolence, and moroseness are the principal mental phenomena, while in the more pronounced types a form of stuporous melancholia is to be found. There is a good deal of irregularity, however, in the mental symptoms, in one case we may have a profound melancholia over the feelings of inexpressible anguish and inclinations to suicide, or moral perversions or micro-mania: in another a joyous, gay, and excitable mental exaltation with impulsiveness and megalomania; in others grandiose ideas with motor and speech derangements simulating cases of general paralysis. True sensory hallucinations never occur. The motor derangements consist in tonic and clonic convulsive spasms, at times with complete consciousness, at others partaking of the character of a true epileptic fit; these muscular contractions chiefly affect the upper extremities and preferably the muscles of the fore-arm and hand, other muscles such as the extensors, more rarely the flexors of the arms and legs, of the trunk, of the masticatory and palpebral muscles of the neck, and occasionally particular muscles, such as the diaphragm and the constrictors of the pharynx. The tonic spasms are cataleptoid in character, and the contractions are generally bilateral. The convulsive attacks partake of the character of true epilepsy, and are sometimes followed by the post-epileptic states occasionally found in the idiopathic form (*e.g.*, furor, automatic acts), and the *petit mal* form; choreiform movements or psychical equivalents may take the place of the true fit. The fits take place usually at night, and the occurrence of a *status epilepticus* in some and the Jacksonian form of epilepsy in a few other cases have been noted. Permanent contraction may follow long-continued or intense muscular spasms, and atrophic paralysis has in some exceptional instances ensued. The irritability to mechanical stimulation of the muscles is sometimes increased, but unaltered towards electrical reaction. The speech affections are bradyphrasia without articulatory disturbance, scanning, stammering, repetition of words or sets of words, and temporary aphasia. Dilatation of the pupils is constant. In the chronic form of ergotism abortion is rare. Sensory derangements are, paræsthesiæ,

—e.g. itching (a premonitory sign) and burning of the skin, hypalgesia, lightning pains, girdle pains, and disorders of the muscular sense (ataxy) and occipital headache. All the special senses are partially affected, and tendon reflexes are diminished as the disease progresses. In the early stage of the affection the vessels are contracted and the pulse is hard and thready, but later on the vascular abnormalities disappear to return again in the more fully developed stages, when gangrene, loss of hair and nails, and sloughing of the cutaneous structures may ensue. The muscles become soft and flabby. Amenorrhœa is succeeded by total suppression of the menses.

Progress and Termination.—In the acute form recovery may take place in a few days, or death may ensue through cardiac paralysis, asphyxia, or collapse. Recovery follows as a rule in the chronic form if the patient is placed under more favourable hygienic conditions, but if this is not effected and the assimilation of ergot continues, an increasing cachectic state, leading to extreme wasting or to the development of acute intestinal symptoms, may terminate the case. The recovery when the mental affection has established itself is, even under the most favourable circumstances, slow, and even then certain sequelæ (intellectual and nervous weakness) ensue, which persist and render the patient extremely susceptible to future mental attacks on the smallest exhibition of the poison, or when ill health or bad nutrition lower his strength. Epilepsy and dementia of a stationary form, and in children idiocy, may also be the permanent sequential results of this affection. The analgetic paræsthetic, and ataxic symptoms may all vanish as the patient recovers, but the tendon-reflex phenomena only exceptionally return. Permanent contraction of the flexor muscles of the fingers and toes (*Krallenstellung*) has been noted.

Diagnosis.—The acute form has to be distinguished from acute poisoning by ptomaines, &c., and in the subacute and chronic forms the diagnosis must be made from gangrene due to other causes, enteric fever, and dysentery; the spasmodic variety must be differentiated from tetany and other convulsive disorders, while the distinction between cases of mental affection due to ergotism, and those of general paralysis, can usually be determined by noting the differences in the reflex phenomena and the absence in the former of progressive symptoms; the history of the case and its associated ergotismal symptoms will diagnose the more usual mental

affections of this disease from those due to other causes.

Prognosis.—This must be cautiously formed, owing to the tendency of symptoms to relapse, the most favourable cases being those taken in hand during the early stages, and those which have a subacute form.

Pathology.—Apart from certain cord lesions there are no constant post-mortem signs characteristic of the malady, all other appearances being such as are found in many other affections, and as might be expected from the symptoms during life. Even in the spasmodic form microscopical examination of the nerves supplying the implicated muscles gives negative results. There are no distinctive cerebral lesions of note. The cord lesion, which is constant, is an affection of the posterior columns, especially Burdach's cords, including Westphal's root zone, extending throughout the whole length of the cord to the post-pyramidal nucleus in the medulla. The histological character of the lesion is a degeneration—an atrophy of the nerve fibres with proliferation of the neuroglia, but without any affection of the vessels, together with the occurrence of granular cells and amylaceous corpuscles. This lesion is never found in animals artificially or naturally poisoned by ergot. The development of gangrene has been attributed by Krysinski, not to arterial spasm and thrombosis, but rather to a lack of power in the tissues to resist the destructive action of bacteria. The cerebro-spinal symptoms and mental derangements with the occurrence of epilepsy and its allied states, point to an early implication of the cerebral cortex. Krysinski believes he has discovered microbes of various kinds characteristic of this affection, but further proof is requisite before this can be accepted.

Treatment.—This must be mainly hygienic and dietetic. The patients must, if possible, be removed from infected districts and fed with food which has no chance of being affected. In Russia the State confiscates all the grain as soon as an epidemic breaks out in a district, and the use of such corn is prohibited by law. Acute poisoning necessitates prompt action by emetics and stimulants. The treatment for the rest is mainly symptomatic.

FRANZ TUCZEK.

[References. — Krysinski, *Pathologische und Kritische Beiträge zur Mutterkornfrage*, 1888. Tuczek, *Die Veränderungen im Centralnervensystem, besonders in den Hintersträngen des Rückenmarks bei Ergotismus*, *Archiv für Psychiatrie*, xiii. and xviii. For less recent authorities see Hirsch, *Handbuch der historisch-geographischen Pathologie*, 1883.]

EROMANIA (ἔρως, love; μανία, madness). A synonym of Erotomania.

EROTIC FEVER (ἔρωτικός, from ἔρως, love). The fever which is said to accompany attacks of Erotomania.

EROTOMANIA, EROTICOMANIA (ἔρως or ἐρωτικός; μανία, madness). Terms used for those forms of insanity where there is an intensely morbid desire towards a person of the opposite sex, without sensual passion (Clouston). Others define it as synonymous with Nymphomania and Satyriasis. (Fr. *érotomanie*; Ger. *Liebeswuth, Liebeswahnsinn.*) (See INSANITY, EROTIC.)

EROTOMANIA PERSONALIS (ἔρως, μανία; *personalis*, relating to the person). A term used as synonym of Satyriasis and Nymphomania.

ERYSIPELAS IN ASYLUMS.—Although the causation of erysipelas has not been definitely ascertained, and is still a matter of discussion, yet the circumstances of its occurrence unmistakably indicate that this disease appears chiefly amongst persons living in a bad sanitary state. It is not necessary here to discuss the general question of the causation of erysipelas, for as to its occurrence in asylums there is little to remark except that, along with typhoid and dysenteric diarrhoea, it is a sure indication of pollution of the atmosphere by sewer gases. It is probable that this disease would not have attracted special attention, had it not been suggested a number of years ago that it was due to the practice of the medical officers in asylums making post-mortem examinations. This led to some correspondence (see *Journal of Mental Science*, vol. xxiv.) which conclusively proved that the suggestion had no foundation in fact—as might have been expected. Since that correspondence occurred, 1878, post-mortem examinations have been made in an increasing proportion of cases; but at the same time great attention has been paid to the drainage of asylums. What are the results? The number of deaths due to erysipelas has markedly decreased, and these deaths have chiefly occurred where typhoid and diarrhoea have led to fatal results. It is therefore highly probable that when all asylums have perfected their sewage systems, deaths from these causes will disappear.

The following table shows very clearly the marked sanitary improvement that has occurred in English County and Borough asylums during the past ten years. The table, except the last line, appeared in the correspondence already mentioned:—

Year.	Asylum Reports Examined.	Average Number Resident in the Asylums.	Total Deaths from Erysipelas.	Death-rate from Erysipelas per 1000 of Asylum population.
1863	26	11,798	12	1.017
1864	26	12,802	18	1.406
1865	32	14,004	11	0.785
1866	33	14,910	5	0.536
1867	35	16,583	21	1.266
1868	36	17,538	11	0.632
1869	39	21,064	17	0.807
1870	39	21,745	15	0.689
1871	45	24,435	25	1.023
1872	48	28,022	23	0.820
1873	51	27,008	25	0.925
1874	44	28,078	32	1.139
1875	48	24,239	51	2.104
1876	52	31,433	25	0.795
1877	51	30,738	22	0.715
1888	56	39,261	17	0.433

It is evident that the large sums of money spent during the last few years on sanitary improvements have not been wasted; and it is to be hoped that where erysipelas still occurs, such alterations will be effected in the drainage as to banish it from the population. With it will probably disappear both typhoid and dysenteric diarrhoea.

Concerning erysipelas as affecting lunatics nothing appears to have been recorded, and the writer is able to say very little from personal observation. That it is a peculiarly dangerous disease is self-evident when it attacks persons already reduced by mental derangement, and by organic brain affections. As it is believed to select the site of an injury of the skin or mucous membrane, however minute, and is highly contagious, the circumstances of asylum life are highly favourable to its diffusion. Many years ago when the surroundings of lunatics were not as satisfactory as they are now, the disease seems to have attained a great height in Paris, for Rayer describes, according to the statements of Calmeil, an extensive occurrence of erysipelas in the Paris hospitals, in the year 1828 (especially in those for the insane), where at that time patients were often treated by revulsive applications upon the skin. "For six months the hospitals have been crowded with patients affected with erysipelas. The affection shows itself upon any part of the body, sometimes upon a sound one, but oftener in

the neighbourhood of some cauterised portion of skin." Similar cases were observed in the Bicêtre, St. Louis, and Charité hospitals, and the number of them at certain times was so great that the disease became a true epidemic.

According to the older observations, overcrowding was considered a fruitful source of the disease; but sometimes overcrowding of the worst description occurred in hospitals without its development. Of late years, however, observations have been more searching, and several facts have been discovered which point strongly to sewer-gas as the real, though not immediate, source of the malady. Zuelzer, in his article in Ziemssen's "Cyclopædia of Medicine," quotes from Volkmann's treatise, that in the Middlesex Hospital, for a long time, those patients exclusively who lay in two beds, standing next each other, were constantly attacked one after the other with erysipelas, without any further infection occurring in the same ward. It was finally discovered that a pipe from the privy, which was situated in the wall between these beds, was defective; it was repaired, and the erysipelas disappeared. Ten years afterwards erysipelas began in the same beds; and, mindful of former experience, the pipe was examined, and again found defective; on mending it no new case occurred. An entirely similar instance was observed in the surgical division of the Berlin Charité, where the disease occurred only in certain beds which stood directly above a defective privy pipe; after repairing it the erysipelas disappeared.

Similar experience could be quoted from several asylums—e.g., Wakefield, Wadsley, Govan, &c.

Once erysipelas has obtained a lodgment in an asylum, its method of spreading may appear inexplicable. The disease may be communicated by inoculation by direct contact, or from towels, dressings, &c. It may also spread by the air, but the infective area in such circumstances appears to be very limited. All modern observations lead to the belief that the immediate cause of infection is to be sought in bacteria which have been found abundantly in the inflamed areas, less so in the blood. The beneficial results of antiseptic treatment point in the same direction, and the value of separation of the infective patients is beyond doubt a means of diminishing infection. All asylums, therefore, should have a detached building for the treatment of such cases, and the antiseptic form of treatment adopted in all its rigour.

It is important to remember that under

the name "erysipelas," English physicians include diseases believed by others to be quite distinct. In this country it is usual to include all phlegmonous and other inflammations of the skin and subcutaneous cellular tissue which tend to spread quickly over large surfaces. (Zuelzer.) About these distinctions it is not necessary to particularise, because all modern research seems to point to modifications in the operation of one morbid agent, introduced into the body at one or more points when the skin or mucous membrane is broken. It should however be remembered that in the statistics given previously, all deaths due to cellulitis are included, whether it was the only cause of death, or only a complication.

T. W. McDOWALL.

ETHNIC VARIETIES OF IDIOCY.
(See IDIOCY.)

EUÆSTHESIA (εὖ, well; αἰσθησις, perception by the senses). Vigour of the senses; a feeling of well-being.

EUPATHIA (εὐπάθεια, from εὖ, well; πάθος, an affection). Sensitiveness to impressions whether normal or morbid.

EUTHYMIA (εὐθυμία, one who is of a lively disposition). An old term used by Hippocrates ("Epid." xxxi. v. 15) for gladness, joyfulness, or tranquillity of mind.

EVIDENCE (Law of) in its Relation to LUNACY.—The relation of the law of evidence to the law of lunacy will be most conveniently considered under the following heads:—(1) The legal test of lunacy; (2) Evidence of insanity which is legally admissible in proof of lunacy; and (3) The competency of the insane as witnesses.

(1) **The Legal Test of Lunacy.**—It is of vital importance to bear in mind that lunacy and insanity are not convertible terms. Lunacy, or unsoundness of mind, may be described, with sufficient accuracy for the present purpose, as that degree of insanity which incapacitates a man, in the eye of the law, for doing a particular act or incurring a particular liability. The failure to notice and to realise this fundamental distinction has introduced very considerable confusion, not only into our text-books but into our case law itself. Nothing is more common than to meet, in the works even of eminent legal writers, such statements as the following: "The marriage of a lunatic is void," "the contract of a lunatic is voidable." Now, a lunatic being a person who is legally incompetent to marry or contract, the propositions aforesaid are truisms, and are logically equivalent to the statement that "a hen's egg is the egg of a hen." Moreover, they countenance and help to per-

petuate the wide-spread impression that insanity and lunacy are identical, and that, therefore, according to our law the bare existence of insanity is fatal to civil capacity. This is not, and, except during a short period, has never been, the law of England.

Drew v. Nunn (1879, L. R. 4 Q. B. D. 661) is an instructive illustration of the error in question operating in English case law. The plaintiff was a tradesman, and the defendant had given his wife authority to deal with the plaintiff, and had held her out as his agent, and as entitled to pledge his credit. Afterwards the defendant became insane, and whilst his malady lasted his wife ordered goods from the plaintiff, who accordingly supplied them. At the time of supplying the goods, the plaintiff was unaware that the defendant had become insane. The defendant afterwards recovered his reason and refused to pay for the goods supplied to his wife by the plaintiff. It was held that he was liable for the price of the goods. Now, it is clear that two questions were raised by this case—(1) the effect of insanity on the authority of an agent, and (2) the well-known doctrine of “holding out.” The case was argued upon the assumption that insanity and lunacy were the same thing; and it was left for the present Master of the Rolls (then Lord Justice Brett) and Lord Bramwell to raise the point as to the *extent* of the defendant’s insanity.

Another, and not less serious, source of confusion is the persistent assertion that the law has a variety of tests for lunacy. Thus, it is contended that the testamentary capacity, the contractual capacity, and the criminal responsibility of the insane are judged by different standards. This argument has just sufficient force and truth in it to give rise to difficulty and error. It is true that at one period in the development of our law of lunacy, a variety of arbitrary and inconsistent tests were applied in order to determine the capacity and liability of the insane. Thus the bare existence of mental disease was held to unfit a man for marrying (*Hancock v. Peaty*, 1 P. & D. p. 335) or for making a will (*Waring v. Waring*, 6 Moo. P. C. 341); on the other hand, insanity was no defence to an action on a contract; and the criminal responsibility of the insane was governed first by “the wild beast theory” of Mr. Justice Tracy, then by the “right and wrong in the abstract theory” of Lord Mansfield, and, lastly, by “the rules in MacNaghten’s case,” which are condemned by the best medical and legal opinion in

the world.* But each of these branches of law has largely developed in recent years; and it may be affirmed with practical accuracy that there is now but one legal test of lunacy—viz., *Was this person whose conduct is in question capable of the act imputed to him?* The authorities for this proposition are *Banks v. Goodfellow* (1870, L. R. 5 Q. B. 549), *Durham v. Durham* (1885, 10 P. & D. 80), *Jenkins v. Morris* (1880, 14 Ch. D. 674), and as regards “the rules in MacNaghten’s case,” Sir James Stephen’s “History of the Criminal Law,” vol. ii. ch. 19. It puts in issue not only the knowledge, but the state of will, of the alleged lunatic, and is in strict accord with the most advanced medico-legal opinion. It will be observed, therefore, that legal capacity and, *mutatis mutandis*, legal liability in mental disease now depend upon (1) the nature of the act in question, and (2) how far the alleged lunatic understands and is capable of doing or refraining from doing it. The *factum probandum* in every case of disputed lunacy is, that *the particular person* whose conduct is in question was capable or incapable of understanding and doing *the particular act* imputed to him. We come now to consider the *modus probandi*.

(2) **Evidence of Insanity which is legally admissible in Proof of Lunacy.**

—The *conduct* of the alleged lunatic himself, *at, before, and immediately after*, the critical transaction, is relevant evidence of lunacy (*Beavan v. M'Donnell*, 10 Ex. 184; *Lovatt v. Tribe*, 3 F. & F. 9).

The Lunacy Regulation Act, 1862, limits the evidence of insanity which can be brought forward on an inquisition *de lunatico inquirendo* to two years before the date of the inquiry, unless the Master or Judge, presiding at the trial, otherwise direct (s. 3, and see now, Lunacy Act, 1890, s. 98). We owe this provision to the scandalous waste of public time that occurred in the *Windham Case* (31 L. J. N. S. Ch. 721). In no other branch of the law of lunacy has a similar restriction been imposed; but it is hardly necessary to point out that remote evidence of insanity can never counterbalance a strong *primâ facie* case of sanity at the date of the act in dispute. (*Ferguson v. Barrett*, 1 F. & F. 613; *East India Co. v. Dyce Sombre*, 7 W. R. 714–718.)

Mere eccentricity of dress or behaviour, though admissible as evidence, goes but a little way to establish lunacy (*Boughton v. Knight*, 1872, L. R. 3 P. & D. 84).

* Cf. the articles on TESTAMENTARY CAPACITY, CONTRACTS, MARRIAGE, and CRIMINAL RESPONSIBILITY.

A man's *general habits* constitute better evidence of his mental state than particular acts. (*Snook v. Watts*, 11 Beav. 108.) Indeed, insanity may be defined as the departure from one's own standard of habit and character. (Cf. Ray, *Med. Jur. of Insanity*, p. 131.)

Although the point has not been expressly decided, there is every reason to believe that *writings* of an insane person—the value of which as an index to his mental condition is amply proved by the instances given in Taylor's "Medical Jurisprudence" (vol. ii, pp. 526-7)—would be admissible as evidence whether they bear date before (*Re Scott*, 1874, 22 W. R. 748), or after (*Bootle v. Blundell*, 1815, 19 Ves. Jun. 506) the period in issue. In the latter case, however, the evidence would be regarded with considerable jealousy.

*The character of the disputed act itself** is relevant evidence. A jury are entitled to, and do in fact, consider such questions as the following: Was the act rational? Did it proceed from the alleged lunatic, or was his will acted upon by disease or by external influence? Within limits, which are quite appreciable, this is true whether the act in question be a contract, a testament, or a crime. The irrationality of crime in the abstract is of course entirely irrelevant as a defence to a criminal charge. But the improbability that a man of unblemished character and affectionate disposition would, without any apparent motive, commit such a crime as the murder of his wife and children is, if not legal evidence, at least a circumstance to which juries attach weight in considering their verdict.

Under this head it is necessary to consider the value of *suicide* as evidence of insanity.† The law may be stated as follows: (1) Where the question under judicial investigation is *the suicide itself*, very slight evidence of derangement at the time will warrant a coroner's jury in finding a verdict of insanity. This appears to have been settled at least as early as the beginning of the reign of James II. (cf. *R. v. Galoway*, 2 Jac. II. 3 Mod. 100); and the reasons assigned for the rule are *first* that suicide, or *felo de se*, is a crime, and the presumption of the law is in favour of innocence, and *secondly*, that suicide entailed forfeiture

* In *Cartwright v. Cartwright* (1793, 1 Phill. E. R. at pp. 102-3) Sir William Wynne treated the steady and correct handwriting of a testatrix as evidence of her sanity. It was in this case that the often-quoted and much misunderstood dictum, that a rational act rationally done is the best proof of capacity, was laid down.

† Suicide in its relation to life insurance is considered under the head of LIFE INSURANCE.

of the property of the *felo de se* (1 East, P. C. 389-90.) Forfeiture, consequent on *felo de se*, was abolished by the statute 33 & 34 Vict. c. 23, but coroner's juries still display in such cases all their old reluctance to find any other verdict than that of insanity. (2) Suicide subsequent to the act in issue is relevant (*McAdam v. Walker*, 1813, 1 Dow 179), but far from conclusive (S. C. at p. 187), evidence of insanity.*

The *evidence of the lunatic himself*, after his recovery, is not sufficient proof of incapacity (*Knight v. Young*, 1813, 2 V. & B. 184).†

The fact that *insanity is hereditary* in the family of an alleged lunatic may, it seems, be proved in criminal cases, on the ground that a criminal act is likely to produce the excitement under which hereditary insanity would manifest itself,‡ but such evidence will (probably) be rejected in civil cases, unless in regard to very near relatives.§ *Post-mortem* evidence of insanity is admissible (*Roberts v. Kerslake*, 1854, cited by Pope, at p. 390).

The *manner in which third parties* have treated an alleged lunatic is evidence *as against them* (*Re Windham*, 31 L. J. N. S. Ch. 721), but not as against other persons, unless it is merely intended to introduce relevant evidence of the alleged lunatic's own acts. This rule, which is somewhat technical, may readily be explained by a simple illustration. Suppose that the lunacy of A. is in question, and that it can be shown that B. and C., his father and mother, have always treated him, and written to him as a perfectly sane person. If B. and C. are setting up the lunacy of A., their conduct and their letters are evidence, which they must explain away if they can. But if D., a stranger, is impeaching the sanity of A., the conduct and the letters of B. and C. are no evidence against him, but fall under the category of "general reputation" or "opinion," which is inadmissible as proof of insanity, or of the reverse. If it

* Cf. *Burrows v. Burrows*, 1827, 1 Hagg. E. R. 109; *Chambers v. Queen's Proctor*, 1840, 2 Curt. E. R. 415. The verdict of a coroner's jury finding insanity cannot be *traversed*, no traverse being allowed to make a man *felo de se* (1 Ventr. 239, 278). A writ of *melius inquirendum* may, however, be obtained on an affidavit of misbehaviour on the part of the coroner or his jury (*R. v. Hethersal*, 1 & 2 Jac. II., 3 Mod. 80).

† *A fortiori* the alleged lunatic cannot prove his own sanity, *Bootle v. Blundell*, 1815, 19 Ves. Jun. 506.

‡ See authorities cited in Pope's "Law of Lunacy," at p. 392.

§ *Doe v. Whitefoot*, 1838, 8 C. & P. 272, per Gurney, B.; *Tyrell v. Jenner*, 1818, 2 Hagg. 84 (*Marsh v. Tyrell*); *Frere v. Peacocke*, 1843, 3 Curt. 664.

can be shown however that A. was conscious of, or affected by, the treatment of B. and C., if, for example, he replied to their letters, then the conduct or the letters of B. and C. may be put in evidence, even against D., as introductory to evidence of the conduct of A.*

An inquisition *de lunatico inquirendo* is presumptive, but not conclusive, evidence of insanity† or sanity.‡

(3) **The Competency of the Insane as Witnesses.**—Persons of *nonsane memory*§ were at one time excluded from giving evidence (Com. Dig. Test., A 1), either because they were supposed to be insensible to the obligation of an oath, or on account of their presumed inability to recollect the events which they had witnessed. This rule has now been in great measure abrogated. (1) A person born deaf and dumb, although presumed to be an idiot, may give evidence (a) if it appears that he is possessed of intelligence, and understands the nature of an oath, and (b) if he can be communicated with by signs and tokens, or by writing.|| If a deaf and dumb witness can write, that mode of examination is usually adopted, but there is no fixed rule upon the subject, and in one case the evidence was taken partly by writing and partly by signs.¶ (2) It is now clearly settled that an insane person may give evidence either *vivâ voce* or upon affidavit, subject to the following rules:—

(a) If the proposed witness is confined in a lunatic asylum a *habeas corpus ad testificandum* will be granted for his production on an affidavit that he is not a dangerous lunatic, and in a fit state to be brought before the Court (*Fennell v. Tait*, 1834, 1 C. M. & R. 584, per Parke, B.).

(b) The judge must first examine the witness tendered to see whether he understands the nature and sanction of an oath. Before the witness is sworn he may be cross-examined, and evidence may be called to prove circumstances which show him to be inadmissible. In the absence of such proof he is *competent*, but the jury must decide as to his *credibility*. The authority for this proposition is *Reg. v. Hill* (2 Den. C. C. 254), which

* *Re Windham*, ubi sup., *Wright v. Doe d. Tatham*, 1838, 4 Bing. N.C. 489, 566–7, *Greenslade v. Dare*, 1855, 20 Beav. 284.

† *Sergeson v. Sealey*, 1742, 2 Atk. 412, etc.

‡ *Hume v. Burton*, 1 Ridg. P. C. 204.

§ The rule did not apply to a lunatic during a lucid interval (Com. Dig. Test. ubi sup.)

|| *R. v. Ruston*, Leach, 408, 1786; *Morrison v. Lennard*, 1827, 3 C. & P. 127.

¶ *Bartholomew v. George*, 1851, cited in Best's Evid. 146.

was tried in 1851. The accused, an attendant in the ward of a lunatic asylum, was indicted for the manslaughter of a patient under his care. The prosecution intimated that a man named Donelly, a patient in the same ward as the deceased, would be called as a witness. On preliminary examination Donelly deposed that he had 20,000 spirits about him, but he was quite sensible on all points not connected with his delusion, understood the nature and sanction of an oath, and gave a perfectly rational account of the transaction in question. In cross-examination Donelly was asked as to the date of the event. He replied, "These creatures insist upon it it was Tuesday night, and I think it was Monday." "Is what you have told us," inquired the cross-examining counsel, "what the spirits told you, or what you recollect without the spirits?" He answered that *the spirits only assisted him in speaking of the date*. The evidence was admitted, and the ruling was supported upon appeal by the *Court for Crown Cases Reserved*.

(c) Where the evidence of an insane person is taken by affidavit, there ought to be a preliminary inquiry as to his *competency* by the ordinary commissioner before whom the affidavit is sworn, and the result should be set out in the jurat (*Spittle v. Walton*, 1871, L. R. 11 Eq. 420).

The Court will occasionally postpone a trial of importance if satisfied that a lunatic witness, without whose testimony the ends of justice would probably be defeated, will within a reasonable time be able to give evidence. An application for this indulgence must, it seems, be made before the jury is sworn (*R. v. Wade*, 1 Moo. C. C. 86; *R. v. Kinloch*, 18 How. St. Tr. 402–8).

Where an attesting witness subsequently becomes insane, it will be sufficient to prove his handwriting (*Currie v. Child*, 3 Camp. 283; *Bennett v. Taylor*, 9 Ves. Jun. 581). Depositions taken before a committing magistrate of a witness who subsequently becomes insane are admissible at the trial on proof of insanity.

The evidence of experts is discussed under the head EXPERTS.

A. WOOD RENTON.

EVOLUTION OF MENTAL DISORDER. (See EPIDEMIC INSANITY.)

EVOLUTION OF MENTAL FACULTY.—The infant at the earliest ages does not show actual signs of mental action; it does not walk or talk, or turn its head and eyes towards objects. Its movements are not modified in any

marked degree by the action of light or sound. The brain in the infant is in some respects less impressionable than in the adult, and the impressions are less permanent. During the early months of infant life the signs of brain development are identical with the signs of development of mental potentiality. The new-born infant presents constant movement in all its parts, while it is awake, and this is not controlled by impressions from without. This spontaneous movement in the infant appears to be of great physiological importance, and is here termed microkinesis. We have argued that the mode of brain action which produces microkinesis is analogous to the action producing spontaneous movements in all young animals,* and to the modes of cell growth which produce circumnutation in young seedling plants, and that as circumnutation becomes modified by external forces to the modes of movement termed heliotropism, geotropism, &c., so microkinesis in the infant is replaced by the more complicated modes of brain action as evolution proceeds.

Evolution of Mental Faculty, as seen in the Infant, may be sketched in terms implying movements. The signs we observe are movements and indications of action in the nerve-centres demonstrating their spontaneity, their impressionability to forces acting upon the organs of sense, and as evolution of the individual advances, we note the attributes of the actions as seen in series of movements, some spontaneous movements indicating conditions of growth, while others are indicative of evolution of mental faculty.

Observation affords abundant evidence that the various members and parts of a healthy infant present constant movement while it is awake. The same thing may be demonstrated by the use of the graphic method.

In the infant, respiratory movements are established at birth and continue in a uniform series without interruption. The child cries when the skin is wet or cold, and when food has been withheld more than two hours. Contact of an object with the mucous membrane of the lips stimulates the movements of sucking. Cold to the skin is followed by crying; light causes closure of the eyelids; if the eyelids be raised the pupils contract to light. The tone of the sphincter apparatus enables the hollow viscera to retain their contents for a short time. In an infant a few hours old the attempt to straighten the elbow when flexed may be strongly resisted. When the infant is awake spontaneous movements may be seen in the

limbs, especially in the digits or small parts; they are slower than most of the movements of adults, and are almost constant; they occur in no apparent order, but appear to be quite irregular. A short period of wakefulness is usually followed by sleep, indicated by subsidence of all movements, except those of respiration, and the eyelids remain closed. The usual position of the limbs is that of flexion.

These movements in the new-born infant are not controlled through the senses by sight or sound, but movements of respiration and deglutition are controlled by impressions upon the skin and mucous membrane. At this early stage we do not observe the phenomena of delayed expression, cerebral inhibition, or compound cerebral action;* reinforcement of movements appears to be seen in the movements of crying.

The eye movements usually maintain parallelism of their axes, but if the organisation of the infant is feeble, the eyes as they move do not maintain a strict axial parallelism; this is most commonly observable while the infant is sucking its bottle.

It is commonly said that the infant at birth does not give expression to the faculties of mind, because it does not present signs showing that its nerve-centres are impressed, even temporarily, by the sight of surrounding objects, its hands do not move towards objects within the field of vision, and none of its movements indicate that they are controlled by sight or sound.

Following up our observations through the early weeks of infant life, it is seen that movements in the face appear first about the mouth, later in the forehead.† The limbs are moved with more force, they move through a greater amplitude, and may begin to effect some mechanical results. An object placed in the hands is followed by closure of the fingers, and movements of the elbow may result in the object being carried to the mouth, but soon microkinesis returns to the parts, and the object is dropped.

When about three months old some control of movements through the senses may be observed, and the head may turn towards a bright light. Still we do not see

* For explanation of these terms see Article MOVEMENTS.

† It is interesting to compare this with action as seen in the faces of idiots. Examining 15 imbecile children, we obtained the following results as to the muscular actions most frequently occurring:—

Occipito-frontalis	11	Depressor anguli oris	5
Zygomas	8	Orbicularis oculi	3
Corrugator supercilii	7	Grief muscle	2

—See "Brain," part xii. 1880.

* *Journal of Mental Science*, April 1889.

the hand move straight towards an object within the field of vision, and when a part of the body is irritated, the hand does not move towards it; there is not much capacity for adapted action.*

We have known a child in whom one leg was irritated and the hand was not moved to scratch it, but the other leg moved up so as to do so with the foot. The associated movements of the hands in such an act as transferring an object from one to the other is not acquired for some months. The microkinesis still continues, and when the muscles are strong enough to hold up the head, spontaneous movements of this part, as well as of the eyes, are seen. An infant turns its head towards the light, this is a sign of mentation; its absence indicates amentation or defect in the physiological organ of the mind. The ever-changing expression of children's faces appears to belong to the same class of movements. In the earliest stages microkinesis produces very little effect upon the objects around, it does not supply the child with food or minister to its necessities.

When the infant is about four months old, we find coming signs of impressionability to stimulation. Then the senses, the sight of objects, and sounds around begin to control the microkinesis.

Here is a tracing from an infant about four months old; the microkinesis was temporarily inhibited, both by sight and by sound.

A little later in the history of the cerebral evolution of the infant, the sight of an object may not only inhibit the microkinesis, but this may be followed by

turning of the head and eyes and the hands towards the source of light or sound (compound cerebration and cerebral reinforcements).* Sometimes the sight is followed

by rotation of the head towards the light, then cessation of all movement, shortly followed, in its turn, by much general movement in the parts of the body. At this stage of development we find that any control of movements by direct stimulation is followed at once by its visible expression (there is no delayed expression).

In a new-born infant it may be assumed that there is no mentation, no memory, no will. It is intrinsically possessed of a certain histological structure, with its properties and powers of reflex action, microkinesis, susceptibility to impressions, received through the special senses. It is also receptive to the effects of external forces in producing synchresis, &c.*

At the end of twelve months, examples of cerebral inhibition followed by action well adapted to the impressions made begin to appear. The child now stretches out its hands at sight of the feeding-bottle, and makes a characteristic sound at the sight of its mother. As the further signs of mental action are evolved, the spontaneous action of the infant brain comes more and more under control of surrounding impressions, and is regulated in its attributes by them.

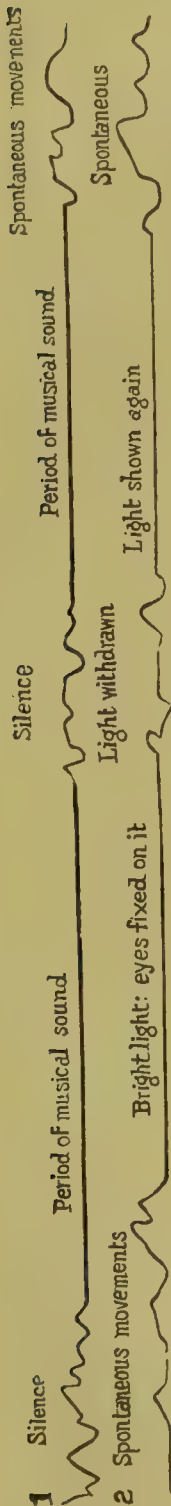
In adult life, when mental faculty has become manifest, we see that the impression made by the sound of words heard, or the effect of things seen, may be a long series of acts—this corresponds to the efferent discharge from many groups of brain cells. The movements which indicate recollection of names (retentiveness) are very important, the word is heard, and the special movement follows.

Upward rotation of the eyes, with elevation of the upper lids, and movements of the eyes in their orbits, appear to be later developments than movements of the head.

At three years old the conditions are markedly changed; many examples of delayed expression and compound cerebration with or without nerve-reinforcements may be seen.* Microkinesis continues, but it is much more under control through the senses; retentiveness in the centres is illustrated by recurrence of similar actions upon similar stimulations. Actions in other people are now imitated.

At ten years old but little microkinesis is seen; we see prolonged periods of cerebral inhibition followed by well marked signs of retentiveness, delayed expression and compound cerebration, the whole being well under command of the circumstances.

Compare the action seen at birth with that seen at *five months*. Microkinesis



* See Article MOVEMENTS.

* See Article MOVEMENTS.

still continues, but is capable of control by stimulation through the senses; it may be arrested temporarily by sight or sound, and this, after many repetitions, may be followed by new series of movements occurring upon less and less stimulation, and with increasing quickness and accuracy as time goes on. We infer a corresponding change in the nerve-centres. It appears that whereas at birth they act slowly and independently of one another—as far as we know without any order in their acting—and the time of this action is not determined through the senses, at the age of five months they may temporarily be suspended from action by external stimulation, and during the time when no afferent currents are passing from them undergo a change indicated subsequently by special combination and series of movements. This appears a great advance in cerebral evolution.

The following kinds of movements may then be seen in the infant. Movements of the outcome of inherited conditions in the nerve-system (microkinesis). Movements following immediately upon stimulation by certain external agencies, as light, sound, &c. Movements resulting from the acquired association of nerve-centres. Movements similar to those previously resulting from a similar cause. Movements in different special areas such as the small joints in contrast with large joints; asymmetry or symmetry of parts, &c. Action indicating delayed expression.

Evolution in Nerve-Centres.—We may proceed to consider the evolution of *visible movements* of the infant as signs of the modes of action of its nerve-centres.

It appears that at birth separate nerve-centres act spontaneously and almost constantly except in sleep, and that such action is not controlled by external forces. Certain centres may, however, affect the respiratory centres, and nerve-currents may spread to the centres, producing the movements of crying (reinforcements).

Later the impressionability of centres through the senses appears, and a series of movements may be controlled, thereby indicating the spread of nerve-currents among cells in a certain order of succession. In advancing stages spontaneous action of centres may be inhibited, no current for the time passing to the muscles, and after many such impressions we may see that certain groups of centres tend to act in certain order.

Retentiveness of impressions is found to exist, and at times an impression may

be made and retained with or without coincident visible movement. Among later developments we see evidence that the centres acting in the child are those corresponding to the centres in action in a person speaking to him.

Movement thus universal at birth must have some important signification. Again, such movements at the earliest ages after birth do not appear by their sequence to produce any direct effect upon the body of the infant, they do not supply it with food, or minister to its necessities; we here speak of the sequence of the movements of parts, not of the effect of action in the centres.

To understand the significance and analogies of microkinesis, it is necessary to look not only to the movements seen, but to the action accruing in the nerve-centres which produce it.

Each movement corresponds to actions in a nerve-centre, the mass of movements corresponds to a mass of nerve-centres in action. Farther, these movements as far as we can see, as to their time, and the parts moving, are not determined by forces around, that is to say, the nerve-centres are not controlled in their attributes of action as to its time by external stimuli acting through the senses. We conclude that in the infant, in its earliest stages, the nerve-centres act separately and independent of special stimulation.

Aptitude for Mental Action and Attention.—In a well-developed and healthy child, evolution of brain power leads to aptness for mental action and attention—the child is educable. The physiological properties of the brain necessary to intellectual action are indicated in the article on PSYCHOSIS, and the signs indicating such condition in the article on MOVEMENTS. It is, however, further necessary that the physical condition and nutrition be good before we can elicit the signs of intelligence and thought; consequently in the child the limit of capacity of continuing mental action is short, for the signs of returning microkinesis and exhaustion follow any prolonged effort. If all the conditions indicated are present, and the child's brain is free, and not strongly stimulated by things around, it may be possible to attract and fix the attention of the child for a few minutes at a time. Attention implies predominance of the external forces over the spontaneous action of the brain, spontaneity is for the moment quelled and superseded by (diatactic) action among the centres controlled by stimuli from without. Its analogue is seen in seedling plants when light or

other external physical force co-ordinates their spontaneous movements to cause bending in certain directions, clasping of a twig for support, or catching a fly (*Drosera rotundifolia*), &c. If the child be pre-occupied, *i.e.*, if its micropsychosis be very strong, this must be quelled temporarily as well as its spontaneous movement, before the attention is said to be fixed.

The effects which result from this character of spontaneity of the nerve-system in the infant appear to be important; they are of two kinds, the secondary effects of the spontaneous movements, and the neural effects of the spontaneous action of a large number of small brain-centres. As to the spontaneous movements; in their effects upon the eyes they bring many objects within the field of vision, and result in many impressions by sight being received; as to movements of limbs and fingers they result in many things being touched with a large addition of impressions resulting.

In the neural action corresponding to microkinesis there are many small nerve-centres acting spontaneously and frequently, so that as the time of action is not uniform, many synchronous actions and new combined actions must occur, giving an opportunity for the formation of new diatactic unions among the centres, aptness for micropsychosis, and capacity for new thoughts.

Microkinesis as a mode of action is opposed to uniform series of actions, to retentiveness, and to adapted action, but it may indicate aptness for all.

Reversion of microkinesis is a means* of dissolving existing diatactic unions; play after school takes out of memory all the Latin grammar till next day.

The return of microkinesis may remove any present modes of mental action, or its expression.

Micropsychosis. — Micropsychosis is the term here applied to the neural action corresponding to a certain known mode of irregular, spontaneous uncontrolled thinking. We will endeavour to explain the kind of facts referred to, and then produce arguments as to the modes of neural action corresponding. In the adult in certain conditions we commonly meet with the expression of spontaneous half-formed almost unconscious thoughts; wandering, disconnected, unworked-out thoughts; the unbidden rush of thoughts; wild un-governed thoughts, a mass of thoughts out of which we tudge and carve what we mean to say, retaining those which are useful, and suppressing the unsuit-

* See Article PSYCHOSIS.

able ones. Such thoughts occur in the efforts of original thinking, and may be dealt with as in using slip-memoranda of facts or ideas which are productive only when arranged under the influence of some guiding principle.

In the infant and young child, vocal sounds and verbal utterances are not connected, they are not controlled by questions put to it. The words used are few, and their combinations are few. The utterances are rather due to the child's general condition at the time than to impressions made through the senses as is the case with the expression of intelligent thinking. A number of intelligent adults seeing an object would use words of expression more similar than a number of children seeing the same object. The child's expression in conversation is fragmentary, disconnected, incoordinated; it may be original, but not in harmony with knowledge. In both adults and children, this mode of thinking may be similar to that called dreaming, unconscious cerebration, imagining, it leads to want of application and thoroughness, and to forgetfulness.

We now have to consider the mode of neural action corresponding to such common modes of thinking. According to our hypothesis every act of thought corresponds to the formation of some diatactic union among nerve-cells which may or may not lead to efferent expression. It may be supposed *à priori* that some mode of diatactic action occurs corresponding to the expression of microkinesis. If an act of psychosis depends upon the formation of a diatactic union among nerve-centres formed by stimuli from without or spontaneously—then we may expect to find diatactic unions formed among the spontaneous or uncontrolled nerve-actions producing microkinesis; we cannot tell whether thought corresponds to such actions till words are used.

The expression of all acts of psychosis necessitates the kind of neural action termed compound cerebration, we cannot then expect to observe the expression of micropsychosis till we get evidence of acts of compound cerebration occurring in the evolution of the brain as evidenced by adapted action in its visible parts. The first little adapted actions in the infant indicate compound cerebration, and probably correspond to micropsychosis.

Some mental acts are more or less spontaneous or automatic as compared with intelligent mental action which is stimulated by, and therefore in harmony with, known facts. Automatic movements

occurring on any stimulus to the body, or entirely spontaneous, are often seen in idiots, and in athetosis; such are not adjusted, either as to the time of the action, or the parts acting, to surrounding conditions. It may be argued on theoretical grounds that the best marked of such cases depend on large combinations of nerve-cells.

The commencement of the rudiments of spontaneous thought in the evolution of the infant is not known to the physiologist—we cannot know the occurrence of thoughts before they are expressed by signs or words more or less like those used by adults. If thoughts depend upon the occurrence of diatactic unions it may be assumed that such occur very early, for we see signs of them in combinations of the spontaneous movements of microkinesis—diatactic unions occur with efferent discharge-producing movements, and such may produce some vague thoughts. We infer then that the neural action corresponding to micro-psychosis is a form of spontaneous diatactic neural action, not stimulated by the present surroundings, but due to inheritance; it is known only, like all sorts of psychosis, by its subsequent expression. It is inferred that in the infant brain the centres act more or less separately and independently, but that when they act together they may correspond to spontaneous thoughts; when they become controllable through the senses into special combinations then they are signs of thought and intelligent action. Even later on in the child's life, much of its spontaneous thinking and movement is not controlled by external impressions, but remains entirely spontaneous as micropsychosis and microkinesis; we shall see that these conditions may revert in the adult. It must not be supposed that in micropsychosis every act represents a definite thought, we do not say that every movement is a definite action; special diatactic unions in combinations and series are called thinking, and special combinations and series of movements are called actions. The commencing signs of intelligence are actions following some stimulus, the intelligent character becomes more marked when we find some period of delay—a latent period—between the stimulus and its expression. "Cooing" in the infant is perhaps simply a display of microkinesis, but disjointed utterances may represent micropsychosis.

The absence of normal microkinesis in an infant that is fairly nourished is a marked character of imbecile infants; spontaneous movement may however be

lost temporarily from conditions of lowered nutrition.

Table showing Comparisons and Analogy between Micropsychosis and Microkinesis.

<i>Micropsychosis.</i>	<i>Microkinesis.</i>
There may not be defined thoughts.	There is movement, but no definite actions are performed.
Dreams.	In sleep there are some spontaneous movements.
A child's talk during play is fragmentary.	In play movements are spontaneous.
Early expressions of thought are vocal utterances—e.g., cooing, single words.	Simple acts or gestures feebly maintained.

It appears that the forces regulating motor action, or the efferent action of nerve-centres, also regulate psychosis and its expression; this leads us to study together the facts of microkinesis and micropsychosis. We wish to write the history of these modes of neural action as a part of the description of the evolution of mental function. This leads us to consider the reversion of both conditions in adults.

Table illustrating the Reversion of Microkinesis and Micropsychosis in Adults.

<i>Microkinesis.</i>	<i>Micropsychosis.</i>
Post-epileptic action.	Post-epileptic "mental reduction."
Fidgety movements.	Wandering thoughts—inattention.
Movements in restless sleep.	Dreams.
Uncontrolled movements.	Uncontrolled thoughts.
Movements controlled by sight.	Thoughts controlled by sight. Cries "Mother" during sleep.

FRANCIS WARNER.

EXALTATION. — **Definition.** — In this article the term "exaltation" is used in a limited sense, as expressing delusions of grandeur and of vanity, of increased wealth, power, and importance, a sense of well-being or general optimism, not in the wider signification, practically synonymous with "excitement" or "increased mental activity," that would include mania and similar conditions. The writer's object is to demonstrate that, so far from exaltation necessarily denoting the general paralytic, there is hardly any symptom common to a greater number of different classes of insanity, and chief stress is laid upon the characteristics and the mental and physical accompaniment of this symptom in these different classes, so that it may be a help rather than a hindrance in diagnosis.

General paralysis will be considered in a separate article, and while allusion is made in this paper to the signification of exaltation from the point of view of prognosis, the pathology and treatment of the different forms of insanity, of which it is but one symptom, will be found under other and more appropriate headings.

Exaltation will here be considered as occurring in (1) chronic mania, (2) insanity of masturbation (masturbatic insanity), (3) epileptic insanity, (4) chronic alcoholic insanity, (5) certain forms of toxic insanity.

(1) Every large asylum contains examples of exaltation among its inmates, free from all taint of alcoholism, epilepsy, or paralysis, and whose mental condition has not been induced by masturbation. Such patients are frequently classified under the title of monomania of grandeur, or of vanity, but for considerations that will be briefly alluded to they will be here described as cases of **chronic mania** with exaltation.

Origin.—This mental state may arise in one of two ways: (1) *secondary* to some acute form of insanity, or (2) as a *primary* intellectual disorder, gradually evolved and developed from some inherent fault in the character of the individual. However arising, there are two important predisposing factors, nearly constantly present, of much influence in determining this particular expression of mental disease—viz., temperament and heredity. As regards the first, it has been pointed out that exaltation has its natural foundation in the brain of every man, woman, or child (Clouston). Its counterparts—castle-building and day-dreaming—are to a greater or less extent as inseparable elements of active, vigorous, intellectual life, as is that hope of which they are but one expression, and without which life is but dust and ashes. Insane exaltation, then, is but the pathological development of a principle essentially physiological, and which restrained within due limits is not necessarily unhealthy. The particular temperament that predisposes to this condition is a proud, sanguine, imaginative, ambitious, and egotistical one, and as a secondary disease its development is as follows. On an individual of such a disposition, prone to day-dreaming and castle-building and to longings that can never be realised, led, too, most likely by an inherited neurotic instability to give too much rein to such imaginings, an attack of acute insanity falls. This shatters the judgment that alone could duly estimate possibilities and probabilities; the adjustment and delicate con-

trol of the higher centres is impaired or removed, and as the acute phase of the disorder and its delusions pass away, if recovery does not speedily ensue, there is too often a gradual weakening of the mind, and those day-dreams and airy castles—which were formerly appreciated at their true worth as impossibilities beyond the region of hope—reappear, but now transformed into imminent probabilities or accomplished facts.

In the rarer *primary* form of this disorder, such morbid development takes place without the interposition of other acute disease. In such temperament and inherited neurotic tendency react on one another with dire effect. The insane inheritance aids in the destruction of the delicate balance of sanity, which the faulty temperament by itself must keep in a condition of great instability.

This variety of exaltation is found more frequently in the well-educated than in the comparatively illiterate class, and in females than in males (Clouston). Governesses, decayed ladies, and persons in analogous positions are often its exponents. And this is not surprising, especially if the two predisposing factors are present. In such persons a sense of education, and possibly of birth, superior to their surroundings and qualifying them for higher social, pecuniary, or intellectual advancement and recognition is for ever inspiring longings and desires, rendered vain, not by any inherent absurdity on their own part, but by miserable want of opportunity on the part of their possessors, whose life may be further embittered by the many little wanton insults, or lack of appreciation magnified by their hypersensitive minds into insults, too often the lot of dependants.

In the *secondary* form it is usually the sequel of mania, more or less acute, but occasionally of melancholia. And sometimes the sudden reversal to poverty from affluence begets it. The mania of suspicion, so closely connected with the egotistical element, is now and then transformed into this, another of its developments. The person who believes that he is an object of hate, conspiracy, or other inimical feeling on the part of his fellow-creatures, by degrees gets to believe that the object of such general if unpleasant attention, must be an important personage himself.

It follows from the foregoing that it is in the chronic insane that we most frequently find this kind of exaltation. To this class belong so many of the kings, queens, and other personages of high rank in our asylums. The exaltation may be

coincident with apparent sanity upon other points, and is often called the monomania of grandeur, pride, vanity, or exaltation. But this is a misleading term, just as "monomania" is often incorrectly used as signifying an insanity on one particular point alone, a partial and limited insanity. So limited an insanity rarely or never exists. Maudsley points out with much force that the different parts and functions of the mind are too independent and closely associated for one to be disordered, and the rest to escape altogether. There is either an alteration in the natural feelings, affections, habits, or character, or else it is found that the special delusion has a wider and deeper influence on the intellectual faculties than appears on the surface. Moreover, these "monomaniacs," if apart from their special delusion apparently sane, are easily excited if their exalted claims are impugned, and then display excitement, confusion, and incoherence identical with that of ordinary mania. And as time advances it is perceived that the main delusion has spread, coloured, and infected more and more of their ideas, so that the term "monomania" speedily becomes too narrow and misleading. For this reason these patients are here described as chronic maniacs with exaltation.

The **growth** of this exaltation is slow and gradual, but steady and sure. Hallucinations of the senses, especially of hearing, commonly but not invariably exist. Patients become altered affectively, and love for wife and children may be lost. They are fond of decking themselves out with the regalia of royalty, or symbols of high rank in the shape of feathers, or similar trumpery ornaments they may find and manufacture significant of their special delusion. In nearly all cases they are tractable, docile, clean, quiet, and, so long as their peculiar fancies are not actively thwarted, most good-tempered. Contented and happy with their surroundings, they rarely make or give rise to complaints. The mental tendency is undoubtedly to enfeeblement.

The bodily condition and health are generally good and life prolonged. Unaffected as a rule by the physical ailments so often the concomitants of other forms of exaltation, and serene in their contentment and placid self-esteem, such patients are protected from many of the influences that tend to shorten life.

Diagnosis is not difficult in this form of exaltation. In its slow, steady growth, and fixed character it contrasts with the wild unstable exaltation of masturbation

or of epilepsy; apart from the physical characteristics of these disorders, and it contrasts again with the flaring, wild fantasies of general paralysis, due to temporarily increased vital action. The exaltation most akin to it is that of chronic alcoholic insanity. But not only do the history and development of the two maladies serve to distinguish between them, but further, the bodily symptoms and condition of the two classes of patients is widely opposed; probably good in the chronic maniac, probably impaired, with a tendency to further degeneration in the chronic alcoholic.

Prognosis is bad, for either this exaltation is a secondary change, and as such indicates chronic and advancing mental degeneration, or, when primary, it is due to the morbid development of some essential and elemental quality of the patient's mind (Maudsley). It is a development of his very "ego," incapable of removal or of much alteration. In the large majority of cases the tendency is towards dementia. Some few have been recorded in which arrest and improvement has followed on some great emotional shock or severe bodily disease (Maudsley), or on an attack of acute mania supervening in the course of the chronic malady, and both clearing off together (Savage). But such terminations are very exceptional.

(2) In the **insanity of masturbation** (masturbatic insanity) exaltation, if it appears at all, appears early, and far more frequently in young male subjects than in those of middle life, or of the female sex. The temperament of the individual, too, does much to determine the form of mental disorder produced by this vice, and it follows that a large number of its insane victims never show any symptom of exaltation. In the very large majority of cases the disorder is associated with, if not, indeed, partially induced by, neurotic inheritance, and not only so, but in proportion to the intensity of the latter is the speed with which the habit of self-abuse is formed and its effects shown, so, as might be expected, the family history of many, if not of most, of this class of patients is deplorable.

Youths, from the age of twenty to thirty, are its most frequent subjects. The **characteristics** are as follows: of all forms of exaltation it is perhaps the most egotistical; every thought is centred in self, the one thing constant ever in a very shifting scene. It begins with exaggerated self-feeling and conceit, which are associated with or develop into intense self-complacency, a high pharisaical spiritual pride, a religious fervour, or even

ecstasy that conveys the confidence of assured salvation. To this class belong not a few of the "Sons of God" to be met within asylums. Hallucinations, especially of hearing, are common, and often expressed in divine revelations. The wild fantasies of the exaltation of general paralysis or of chronic alcoholism are usually absent. And as in all respects masturbators display a want of tone and instability of demeanour and action, so do they in thought, and their exaltation is rarely fixed or constant, but often alternates with and is replaced by hypochondriasis and depression, so that the individual who one day may be on a summit of self-satisfaction is plunged the next into an abyss of despair.

The clinical variety of insanity in which it not frequently occurs is mania of a subacute type. Associated with it is great restlessness, loquacity, more or less incoherence, vacillation, "inconstancy of character, and inconsistency of demeanour." Memory may be weakened; sleep deficient or disturbed by dreams. There is considerable suspicion, irritability, and impatience of contradiction which sometimes leads to violence, and apart from this, small or great acts of destructiveness are often perpetrated, to all appearance wantonly and aimlessly, and from pure love of mischief. Of the good nature, often seen in the exaltation of other forms of insanity, there is but little. Habits are altered. Untidiness, and neglect of personal cleanliness and order are frequent. The devotees are often to be seen talking and laughing to themselves, grimacing, and studying and admiring their countenances in mirrors. Hallucinations of vision occur, though not so frequently as those of hearing. Both sometimes prompt to violence, either homicidal or suicidal, but from lack of resolution, or shrinking from self-inflicted pain, the impulse is rarely translated into action. Occasionally, however, but rarely, and then in vigorous, sthenic subjects, this exaltation is accompanied by acute mania of a violent type, or by paroxysmal attacks with intervals of quiet, the exacerbations following an orgy of self-abuse.

Its usual physical concomitants are an appearance of considerable debility, a pale, sallow face with restless shifting eyes, with dilated pupils, and surrounded by dark ring. Almost invariably the hands are clammy and cold. There is often palpitation, or other evidence of irregular circulation, and frequently complaints of cramps, tingling, and other pains and sensations down the limbs and back. Sexual irritability may be so great that even sponging

or drying the parts causes erection and emission. More or less emaciation is common, and may co-exist with a voracious appetite.

As a rule **diagnosis** is easy. The peculiar character of the exaltation—really *sui generis*—tells its own tale, and associated with the age, appearance, and physical symptoms of the patient will lead to an accurate conclusion in the absence of direct evidence, or in the face of the most indignant protestations.

The **prognosis** is poor. Some cases, generally those taken thoroughly and early in hand, recover absolutely and for ever. Others are cured temporarily, but from inherited and acquired defect, self-control and resolution fail after a longer or shorter period, the habit is resumed, the punishment falls, and recurrence after recurrence takes place, each step downward making the next more easy, and permanent cure more improbable. A third series never improve, but remain either in a condition of chronic subacute mania, or pass through intense hypochondriasis into a settled melancholia, or drift through this into a hopeless dementia, in which the sexual element may still flash out unpleasantly.

(3) In **epileptic insanity** exaltation may appear at any period in the existence of the disease, or of the individual. It is but a part of the mania so often occurring in epilepsy, either as a result of the fits, or of some other cause, the common origin of both the mental and bodily disease. It may precede, supersede, or follow the fits, but the latter is the most frequent relationship, and it does not usually appear until some time after their commencement. It is seen from youth to an age advanced at least for an epileptic, although the usual mental aspect of an epileptic old age is more or less dementia.

Characteristics.—It nearly always takes a religious tone. Increased spiritual power or importance is claimed. There is strong religious emotionalism with extraordinary delusions on the same subjects (Clouston). Such patients may display devotional feelings, or they may exalt themselves on spiritual pinnacles for others to worship. They assert that they are God, or they may assign divine attributes to the most common objects. A distinguishing feature of this exaltation is that it is neither fixed nor stationary, but is unstable, paroxysmal, and sometimes actually periodic. Further, it may totally disappear, and be replaced by intervals of perfect sanity, in which the exalted delusions are forgotten. And on fresh outbreaks, it may be reproduced again and

again, identical in every respect at each reappearance, and it may last each time from a few hours to weeks. It often follows an increase in the number of fits, or at all events coincides with an increased activity in the epileptic state, whether expressed by bodily or by mental symptoms, or by both combined.

Hallucinations are very common, extremely vivid, not only affect every special sense but also common sensation as well, and often suggest and intensify the exaltation. Such patients are devoted to their bibles and religious books, which they read or pretend to read ostentatiously, but at the same time they may be altered affectively, and show great hatred to relatives and friends. Sometimes active, cheerful and full of a sense of well-being, they are more often to some degree gloomy, morose, sullen and suspicious. On this account, and for the terrible fury and violence of the mania that any irritation may evoke, it is most undesirable to combat this exaltation, which indeed is inaccessible to reason.

Diagnosis is sufficiently clear from the above, and presents no special difficulties. As a rule, some bodily symptom of epilepsy is present, if only the slightest convulsion, or change of colour. In rare cases, however, mental disturbances, including exaltation, may precede the development of any bodily symptom, or may take its place (masked epilepsy).

It should here be pointed out that just as alcoholism may produce epilepsy, so does epilepsy occur in the course of alcoholic insanity. But there is no resemblance between the exaltations of these two forms of disease.

Prognosis is generally unfavourable, and worse in proportion to the number and severity of the fits, and the presence of neurotic inheritance. The exaltation, apt to be periodic at first, has a tendency to fade away into dementia, and unless the disease—of which exaltation and fits are but symptoms—can be arrested, this is the common termination.

(4) Delusions of exaltation and of optimism, or their vestiges toned down by the approach of dementia into an unreasoning placid contentment and complete satisfaction, are by no means uncommon in the insanity of chronic alcoholism. Such exaltation is usually a secondary symptom, following on either melancholic delusions, or those of persecution, conspiracy, and suspicions of poison, or occasionally the wild delirium of mania *à potu*. It is generally not established until the insanity has been marked for some time, but occasionally,

though rarely, it is an early or original symptom of the mental disease, especially if not a first attack, but is hardly ever so of acute alcoholism. Patients so affected are seldom under the age of thirty, usually persons of middle life, and more often of the upper than of the lower classes.

Characteristics.—It may vary widely in expression, and may affect only a limited range of ideas or colour every idea; the last is the usual condition. It may be more “reasonable” than that of other forms of insanity, but, on the other hand, it may be as wild as the wildest fantasies of general paralysis, and such patients may and often do “attempt to establish a great omnipresence, to show that they are everything” (Griesinger) and can do everything. The same individual claims that he is King of England, Lord of Lords, has been crucified and risen again, and is an immortality, desiring to marry an English Princess. Another that he is Emperor of the world and Jesus Christ, that he is worth hundreds of millions and can give eternal life by transfusion of blood. A third that he is at once God Almighty, King, Mr. Gladstone, and the Prince of Wales. No claims are too absurd, wild, and self-contradictory for these patients to assert. The exaltation once developed is rarely cured, if lasting six months, and especially if accompanied by hallucinations, it may be described as fixed, stationary, and ineradicable unless swallowed up in dementia. It does not often vary in expression. There are no lucid periods in which these delusions are forgotten and repudiated. They are not usually accompanied by much emotional instability, but rather by a placid calm, nor is there commonly depression or maniacal outbreaks with destructiveness and dirtiness, but cases occur displaying all these symptoms. Impairment of memory is frequent. Hallucinations of sight are rare, those of hearing common. With these mental symptoms there may be, but not necessarily, disturbance of bodily structure and function. Gastritis is common, and also symptoms of cirrhosis of the organs most susceptible to alcohol. There may be tremor of tongue, and of other muscles, anæsthesia or hyperæsthesia, suggesting delusions as to electricity, mesmerism, &c., slurring of speech, weakening and paralysis of the whole or of parts of the muscular system, dulling and abolition of the reflexes, alteration in the pupils, while epileptic seizures may occur from time to time.

Diagnosis.—From the foregoing it will be understood that while some of these cases with clear histories, and a limited

number of mental and bodily symptoms present no difficulty, there are yet others whose histories may be obscure, and who may present a combination of mental and bodily symptoms indistinguishable at first sight from general paralysis. As a rule, in the latter disease the subjects are younger, the exaltation is developed earlier and is more variable, there are remissions, or outbursts of emotion, or of acute mania, epileptic seizures are followed by greater impairment of body and mind, and there is oftener inequality of pupils, and a greasy skin. But these last two symptoms may be absent, the others are by no means constant, while, on the other hand, we undoubtedly see chronic alcoholics displaying a combination of exaltation, forgetfulness, emotional and maniacal outbreaks, dirty habits, tremor, more or less motor and sensory paralysis, and alteration of pupils, which can only be distinguished from general paralysis by patient watching. Time will clear up the difficulty. In alcoholism the condition is essentially chronic and stationary, paralysis or other bodily symptoms advance but slowly, or they may be arrested, or even disappear. As further distinctions, the size and weight of such patients is usually less than that of general paralytics, though sherry-tippers are said to fatten, and their temperature is not subject to as wide fluctuations as that of general paralysis.

Prognosis is necessarily bad from pathological considerations. It is certain that the early stages of alcoholism are associated with cerebral hyperæmia. If only occasional, this may pass away and leave no ill effect. But by repetition, not only is the habit of morbid action fixed in the part so that the effect becomes a cause after the original cause has been withdrawn (Maudsley), but such cerebral hyperæmias occasion the development of exudations, and their further transformations, and the more prolonged and intense the alcoholic disease and habit, the more is this to be feared. (Griesinger.) The brain of the chronic alcoholic is structurally degraded, the membranes are thickened, and the brain substance mixed with proliferated neuroglia and adventitious tissue (Clouston). And so this exaltation, the associate and product of such cerebral hyperæmia, is rarely cured, never if it has lasted any considerable time, though it not infrequently fades away in dementia. The life of such patients is liable to be shortened from some of the physical consequences of their habit, and is not rarely terminated abruptly by apoplectic or epileptic seizure.

(5) Lastly, it may be mentioned that exaltation occasionally, though rarely, is seen in a class of cases in which insanity is caused by the presence in the system of some specific poison.

(a) In **syphilitic insanity** it may give rise to mental symptoms almost, if not quite, identical with those of general paralysis, from which it may be indistinguishable at first, though differentiating points may be found in the greater frequency of headache, in the involvement of one or more of the cranial nerves, and in the loss of some special sense.

(b) In **lead poisoning** it may be present, but here the presence of some of the physical effects of plumbism will suggest the diagnosis.

(c) In **chronic poisoning from opium and its derivatives** it may appear, accompanied by tremor, hallucinations, and, in women at all events, by a display of erotic feeling. BONVILLE B. FOX.

EXALTATION, MENTAL (*exalto*, I elevate). *Vide supra*.

EXAMINATION OF PATIENTS.
(See CASE-TAKING.)

EXANTHROPIA (ἐξ, without; ἄνθρωπος, a man). An old term for what was called the third degree of melancholia, consisting in a dislike of society.

EXCANDESCENTIA FURIBUNDA (*excanDESCO*, I glow; *furibundus*, raging). Plattner's term for the insanity of anger, the temporary aberration of intellect or loss of mental control which at times accompanies violent rage or passion.

EXCRETA OF THE INSANE, on the Examination of the.—In investigating the excretions of the insane, it will always be necessary to know the exact diet, and to collect the entire twenty-four hours of both urine and fæces; it is scarcely credible the number of researches which are utterly useless simply because the food has not been weighed, the drink measured, and the whole twenty-four hours' excretions collected and carefully measured and weighed. Percentage compositions of urine or fæces are valueless unless the totals are known. There may be cases in which patients have so simple a diet that it can readily be analysed, and this is the most accurate method, but with a complicated diet analysis is impracticable, and then recourse must be had to tables such as those the writer has published in his work on "Practical Dietetics," from which the food may be reduced to food equivalents. If there should be a complex dish such as pudding, or a hash or stew, the amounts of the different articles must then be obtained, and the whole calculated from the percentage composition of each taken

singly. A great many standard articles of diet have been analysed biologically—that is to say, they have been first weighed, and then passed through the intestinal tract, and the intestinal residue collected and weighed, so that with the aid of such researches it is possible to tell whether digestion of matters is perfect or imperfect, or whether the canal is excreting abnormally, by simply collecting the twenty-four hours' fæces, and drying and weighing. The following determinations of the amount of fæces which may be expected from certain articles of food will in this respect be useful:—

100 parts of dry		Dry fæces.
Whole meal bread	yield	10.6
Ordinary white bread	"	5.7
Rice	"	4.6
Maize	"	7.7
Potatoes	"	11.5
Green vegetables, such as cauliflower, &c.	"	47-63.0
Peas, beans and other Leguminosæ finely ground and eaten in the form of cakes	"	5.4
Meat	"	3.28
Eggs	"	5.26
Milk	"	11.1
Milk, or without drying in liquid form	"	1.0

To what extent a chemical and biological study of the excretions of those who are mentally diseased, will throw light upon the nature of insanity, is a large field, only the borders of which hitherto have been touched upon. In entering upon this study, the student must ever bear in mind, that should anything abnormal be found, it may have no ætiological relation to the cerebral lesion, but be only a necessary effect. We are not to suppose that, for example, a general paralytic, bolting his food, eating largely and grossly, is likely to possess quite healthy digestion.

There are certain definite points on which affirmation or negation would be of almost equal use—*e.g.*, in acute mania, whether puerperal or otherwise, there is in many cases so striking a similarity to the delirium of fevers, which modern theory refers to the effect of toxines, of ptomaines, or to the "soluble substances" of the French school; that a research on the urine of mania, in which were united chemical and physiological experiment on living animals, might bring out some facts of great interest; so again in many obscure cases of insanity the history is shown to have a definite basis in the absorption by the nervous tissues of lead; and it has been stated by men well qualified to judge of this matter, that the cases which are recognised as forms of

nervous and mental disorder depending upon plumbism are only a fraction of a large amount of unrecognised lead poisoning. In such instances the chemist's aid may be invoked, and the evaporation down of a whole week's urine, the subsequent incineration of the mass, and the search in the carbonaceous ash for lead, by the ordinary processes of mineral chemistry, may reveal the constant elimination of minute traces from one class of patients and none at all from another class. The same may be said of other metallic poisons. There is also the old question of the phosphates. Care must be exercised in stating that in such or such disease there is an elimination of phosphates more than normal, for, leaving out the question of temporary mineral storage, nothing is more clear than that the adult is in a general state of "phosphatic equilibrium," and *both fæces and urine* must be quantitatively examined, and the *phosphates in the food also estimated*, before an opinion of the kind is to be accepted. It must also be remembered that in all determinations of phosphoric acid hitherto made (and from the importance of the determination to agriculturists the subject has been given much attention) there is a rather considerable "experimental error," an error also that is not quite balanced by using the same process for intake and output, because the conditions cannot be made exactly similar.

But little definite is known of the composition of excretion from the bowel in cases of mania, general paralysis, dyspepsia, melancholia, and other maladies which are connected more or less closely with forms of mental disease.

It will be a great advance in the scientific study of insanity should asylum authorities as a matter of routine supply to each asylum a well-fitted laboratory in which those possessing the necessary chemical skill and application can work out a few of the great problems which await solution—problems not only applicable to insanity but the elucidation of which will profoundly affect general medical theory and practice.

WYNTER BLYTH.

EXECUTORS AND ADMINISTRATORS, LAW OF, in relation to LUNACY.—Idiots and lunatics are, both by the civil law and under our own, incapable of being executors or administrators, because they are incompetent either to execute the trust imposed upon them, or to determine whether or not they will undertake it.

It was settled at least as early as the reign of William and Mary (*Mills v. Mills*, 1 *Salk.*, 36), that if an executor became

non compos the Spiritual Court might, on account of such disability, commit administration to another. The modern rules of practice on the point are perfectly definite: (1) If a *sole* executor or administrator become *non compos*, a grant of administration for his use and benefit will be made to (a) the committee of his estate if he has been found lunatic by inquisition; (b) the person entrusted with the application of his property under the Lunacy Act of 1890, if the lunatic has not been so found, but his personal estate has been brought within the protection of the Lord Chancellor under that enactment; (c) if there be no committee, to the residuary legatee, or one of the next-of-kin, or some other person approved of by the Court. (2) Where *one or two or more* executors or administrators become *non compos*,* the joint probate or letters of administration will be revoked, and a fresh grant will be made to the survivor or survivors, the Court reserving power to restore the lunatic to his position if he should recover and make an application in that behalf. Interim grants "during the lunacy" are made without revoking the grant to the insane executor (Coote and Tristram, p. 294). A. WOOD RENTON.

EXHIBITIONIST (*exhibeo*, I show).

A name given to an insane person, usually the subject of Satyriasis, who wilfully exposes himself in public.

EXOPHTHALMIC GOÏTRE AND INSANITY.—**Nosology.**—Exophthalmic goitre is allied by origin to the neuroses; it occurs not uncommonly among the insane. All or some of its symptoms may be associated with mental disorders.

The change in aspect produced may lead to morbid self-consciousness, with ideas of persecution.

With exophthalmic goitre insanity may occur, and is generally of a variable type, ranging from simple depression to great violence and maniacal excitement. As a rule, the attacks are periodic in character.

Exophthalmic goitre may occur synchronously with attacks of periodic mania.

Some symptoms of exophthalmic goitre may occur similarly with each recurring attack of insanity.

In general paralysis of the insane there may be simple exophthalmos, or this may occur with the other symptoms of exophthalmic goitre.

The association between this disease and mental disorder has been pretty fully

recognised. Emminghaus reported two cases of pronounced mental disturbance in the shape of melancholia and periodical mania associated with it (*Allgemeine Psychopathologie*, p. 371). It is noteworthy that occasionally this disorder occurs in members of distinctly neurotic families, and this would seem to indicate that the insanity and the physical disease are collateral, both expressions of a similar and fundamental neurotic vice. "It is an interesting problem for the future," says Spitzka, "to solve why enlargement of the thyroid should in two disorders such as exophthalmos and cretinism be associated with mental disorder" or mental defect, and we would add, what is still more interesting, that with this comparatively unused gland is associated in its diseases disorder of the highest mental functions. Exophthalmic goitre is allied to the other neuroses in being more common in neurotic families than in others.

Symptoms.—It occurs as an acute, at times curable disorder, in a complete form, or it may occur with one or other of the symptoms much more marked than the others, so that in one case the palpitation is the chief cause of complaint, while in another the prominence of the eyes, or the enlargement of the throat, causes the patient to seek medical aid. Exophthalmic goitre may recur in association with periodic attacks of mental excitement, and also may be really one of the symptoms of organic brain disease, such as general paralysis of the insane. The chief symptoms to which we have already referred need not be dwelt upon here.

Synonyms.—Suffice it to say that the disease has been called Graves' disease and Basedow's disease, as well as exophthalmic goitre.

It was supposed to be distinctly connected with the disease of the sympathetic nervous system, though at present there are considerable doubts as to which part of this system really is at fault in the malady. We are sure that the cervical sympathetic ganglia may be perfectly healthy in patients who have died of exophthalmic goitre. On the other hand, though it may be only a strange coincidence, yet it is noteworthy that in several cases, including one of our own, in which a post-mortem examination was made, the supra-renal bodies were diseased, though in these cases there was no other evidence of morbus Addisonii. Hitherto we have not met with any other symptoms of morbus Addisonii, though bronzing of the skin was observed by Taylor of Philadelphia, and recorded in the 4th vol. of the *Ann. Universal Med. Sci. Report*, K. 7. In the cases of acute

* If the *non compos* has been so found by inquisition, the consent of the committee appears to be necessary. Cf. *In re Phillips*, 1824, 2 Add. App. 336.

exophthalmic goitre, in which the disease is associated with some cause of nervous exhaustion, we have never met with any mental symptoms beyond slight mental depression and anxiety, the two conditions passing off under favourable conditions, with tonic treatment and good food and air. In the cases in which the two diseases seem to have been more intimately related, we have always found there has been distinct nervous instability in the family, so that other sisters or brothers have suffered from ordinary insanity, while the patient under consideration suffered from exophthalmic goitre and insanity. In these cases, again, there appeared to be two distinct conditions, one moral and the other physical. In the former, exophthalmos associated with disfigurement and feelings of discomfort and anxiety, lead the patients to believe that people were noticing or watching them, or that friends and relations have taken an antipathy to them in consequence of their altered looks. On the other hand, there are some cases of insanity with exophthalmic goitre, in which the whole symptoms seem to depend upon some more definite lesion of the nervous system. In *Guy's Hosp. Rep.*, vol. xxvi., we collected the histories of three cases which had been under our care in Bethlem; they all were associated with marked excitement and restlessness. The chief characteristics of the insanity of the first case were, incoherence, violence, destructiveness, and sleeplessness, palpitation of the heart was marked and distressing, the pulse ranging from 120 to 140 per minute. The patient was filthy in her habits, filling her mouth with dirt and stones. This may have had something to do with the constant diarrhoea from which she suffered. After the excitement had lasted for some time she became dull, sleepy, and hard to be roused, and though no lung or other complications were present, she sank and died from exhaustion. There were no special changes noteworthy in the brain beyond slight excess of fluid, the grey matter looking normal though thin. The supra-renal capsules were small, but both were diffuent, easily breaking down. There was some enlargement in Peyer's patches, and this is remarkable and interesting from the fact that similar changes were recorded by Mr. Howse in the *Path. Trans.* of 1887.

In another case, also occurring in a young woman, the earliest symptoms were those of melancholia, the patient slowly becoming dull and unoccupied. This depression passed off, and was succeeded by violent mania of the most noisy and destructive type. She talked volubly and

refused her food; she varied considerably, at one time accusing herself of crime, at another being blasphemous and wild. She had to be fed with the stomach-pump for a time. Diarrhoea and sickness set in, and she sank and died. Post mortem there was found intense congestion over the surface of the brain, but beyond that nothing noteworthy. In a third case the patient, a young female telegraph clerk, began by being depressed, later was restless, sleepless, and excited, refusing her food. She believed that she had injured some one, she had also hallucinations of hearing; restlessness and depression were the most marked symptoms. She thought that people watched and noticed her, she was nervous and emotional, and complained of having bad thoughts. Four months after admission she improved somewhat, but again became excitable, and this time was more violent and excited. After nearly twelve months' treatment she was discharged relieved, the exophthalmos and insanity both persisting.

In the *Journ. Ment. Science* for January 1884, Dr. Carlyle Johnstone reported a case of exophthalmic goitre with mania, in which the symptoms are similar in many respects to those already remarked. For several weeks after admission her mental condition was one of alternative tranquillity and violent excitement. After sleeping for one or two nights and spending a few days in a tolerably subdued manner, she would become sleepless, restless, and acutely excited; she broke and destroyed the furniture, rushed wildly about, chattering incoherently; she shouted till she was hoarse. Her appetite was capricious, and difficulty was experienced in getting her to take food. For some days she suffered from vomiting. Her temperature varied from 98° to 100°, the pulse ranging from 134 to 160. After nearly a year in the asylum she died, having, for a short time previous to her death, suffered from losses of sensibility. At the post mortem the convolutions of the right hemisphere presented a flattened aspect, whilst those of the left were normal. The pia mater was considerably injected, and there was some opacity of the arachnoid, the membrane being especially affected, covering the ascending frontal and ascending parietal convolutions to the extent of half a crown; the pia mater was thick and injected, the underlying convolutions being soft and pulpy. The membrane on being removed dragged off with it a layer of cortex, leaving a rough unhealthy surface, studded with minute hæmorrhages. There were numerous adhesions of the pia mater

over the whole of the superior and lateral aspects of this hemisphere. In some places the whole of the cortex came away with the membrane. Over the left hemisphere there were no adhesions. On slicing the right hemisphere there were marked changes in the brain structure. Dr. Johnstone, in referring to this case, says "that psychical disturbance showed itself in irritability, capriciousness, emotional excitability, with hysterical symptoms. That these occurred as alternating periods of excitement and depression. The progress from acute mania into some weakmindedness was accompanied by extreme emaciation and bodily exhaustion, and all the distressing symptoms of Graves' disease passed, leaving a condition in which the mania subsided. The body had become strong and well nourished; the exophthalmic goitre almost ceased for a time to annoy. For some time in this case it seemed as if the patient were going to recover, but soon convulsive seizures affecting the left side, motor and sensory, occurred, and coincident with them rapid degeneration of mind and body associated ultimately with death from exhaustion."

In all cases which we have seen the symptoms have been variable, generally commencing with depression, followed by restlessness, incoherence, volubility, destructiveness, sleeplessness; and these symptoms are soon associated with change in the appetite, and are frequently accompanied by vomiting or diarrhoea.

The **Prognosis** is bad, and though some temporary improvement may take place, it is almost certain to be but of short duration, and the recurrence is associated with rapidly decreasing physical strength, and a prospect of a speedily fatal termination to the case.

Besides such cases as those above described, there are some in which, with ordinary maniacal or melancholic disorder, there is one or other of the symptoms of exophthalmic goitre in addition, so that we have met with one or two cases of maniacal excitement in which there were a rapid pulse and prominent eyeballs, but no distinct alteration in the thyroid gland. In others the enlarged thyroid and prominent eyeballs have been associated with some form of mental disorder without any distinct palpitation or acceleration of the pulse. These cases require to be further studied and their causation to be considered.

In the next place we will refer to certain cases of recurrent insanity in which, with each period of mental disorder, the whole of the symptoms of exophthal-

mic goitre appears, so that a patient, generally a woman, who has a feeling of misery and depression with sleeplessness, is noticed to have staring eyes, which become still more prominent as the disorder of the mind becomes more marked, and passes away at the same time that the mental disorder subsides. In these cases, several of which we have seen, associated with the prominent eyes which call attention to the state, there have been noticed both increase of pulse and also enlargement of the thyroid.

Similar conditions seem to give rise to the exophthalmic goitre and to insanity. It is interesting to notice that exophthalmic goitre is not uncommonly met with in families in which insanity also is present, and also that this may be associated with recurrence of states of mental disorder.

In one such case, after several years of treatment, which by the way was chiefly based upon the idea that there might be a relationship between the exophthalmic goitre and the insanity, the whole of the mental disorder subsided and has remained now for several years in abeyance.

It is noteworthy in these cases that there is a tendency to periodicity, so that in all the cases which we have met with there have been alternations between disorder and health, and between excitement and depression. It must not be overlooked that there may be vomiting, which may have some cerebral origin, and affection of Peyer's glands and the suprarenal capsules, which may point to a possibly vaso-motor or reflex origin for the whole of the disordered conditions.

Finally, we would record that in a certain number of cases of general paralysis of the insane we have met with symptoms of exophthalmic goitre, but we are scarcely in a position yet to say what the real connexion is. Suffice it to say that in one case of general paralysis of the insane with great restlessness, excitement and extravagance of ideas, and of acts, there was marked prominence of the eyeballs, so that a photograph taken a year before, and one taken immediately on admission, showed a great alteration in appearance due to this change. With this there was a rapid pulse of 150 a minute; no enlargement of the thyroid was noted. In one other case of general paralysis, one eyeball was much more prominent than the other, and in another there was an enlargement of the thyroid with slight exophthalmos and slight increase in the rapidity of the pulse. In two cases which ended fatally with epileptiform convulsions there was marked exophthalmos, though with no other symptoms of exophthalmic goitre,

and in these cases there was considerable flattening of the convolutions of the brain due to very great excess of fluid in the lateral ventricles. GEO. H. SAVAGE.

EXORCISM. (See *ENERGUMENS.*)

EXPECTANCY OF LIFE. (See *STATISTICS.*)

EXPERTS, MEDICAL.—To the general rule that a witness must speak to facts and not to matters of opinion, our law has from a very early period in its history recognised one important exception which may be stated thus:—"The opinion of witnesses possessing peculiar skill is admissible whenever the subject-matter of inquiry is such that inexperienced persons are unlikely to prove capable of forming a correct judgment upon it without such assistance—in other words, when it so far partakes of the nature of a science as to require a course of previous habit or study in order to the attainment of a knowledge of it."*

We find accordingly that, at least as far back as the reign of Henry VII., the Courts were in the habit of summoning to their assistance, *apparently as assessors*, persons specially qualified to advise upon any scientific or technical question that required to be determined. Thus, "on an appeal of *maihem* (*i.e.*, wounding) the defendant prayed that the Court would see the wound to see if there had been a maiming or not. And the Court did not know how to adjudge, because the wound was new, and then the defendant took issue and prayed the Court that the *maihem* might be examined, on which a writ was sent to the Sheriff to cause to come 'medicos chirurgicos de melioribus London, ad informandum dominum regem et curium de his quae eis ex parte domini regis injungerentur.'"†

The English law of criminal procedure being *litigious*, and not *inquisitorial*, the scientific expert was ere long placed in the position of an ordinary witness, subject to examination and cross-examination, and ceased entirely to exercise the functions of an assessor to the legal tribunals. Our case-law contains many judicial deliverances, which it would be irrelevant to quote, and some of which do not deserve quotation, upon the untrustworthy character of medical expert evidence. The

* Smith's note on *Carter v. Boehm*, "Leading Cases," edition 1887, vol. i. p. 544.

† Cf. the "Year Book" for 21 Hen. VII. pl. 30, p. 33, and Best's "Evid." 649, n.(h). The practice of calling in expert assistance in judicial inquiries was not confined to medico-legal cases. "If matters arise," said Justice Saunders in *Buckley v. Rice Thomas* (1 & 2 Phil. & Mary, Plowden 124a), "which concerns other faculties, we commonly apply for the aid of that science or faculty which it concerns," &c.

disrepute into which this class of testimony has fallen in England appears to be due chiefly to historical causes, such as the persistency with which many medical witnesses, acting under a belief that their position was or ought to be analogous to that of counsel, played the *rôle* of "medical advocates," the recklessness with which, in the opinion of lawyers, the plea of insanity, and especially of moral insanity, was set up in criminal cases,* and, above all, the circumstances which have made the expert a witness instead of an assessor. The tendency which the legal profession display to forget the triumphs, and to remember only the failures, of medical expertism, and the inheritance of witty judicial comments on the evidence of medical witnesses, which has come down to the lawyers of the present day from their professional ancestors, have done much to perpetuate a feud which is most inimical to the proper administration of justice.†

It is, however, a matter for congratulation that the law has in recent years made rapid strides towards the establishment of a more rational system; and precedents have been recognised which logically involve the reconversion of the medical witness into a medical assessor. Not only does the Admiralty Division habitually try heavy cases of shipping law with the aid of the Brethren of Trinity House, but the Law Officers of the Crown, the Judicial Committee of the Privy Council, and the Court of Appeal are empowered by the Patents Act, 1883, to summon expert assessors to their assistance in the trial of patent actions,‡ and by the 56th section of the Judicature Act, 1873, the same right may be exercised by any Judge of the High Court in any cause or matter

* Cf. Taylor, "Med. Jur.," vol. i. p. 37, vol. ii. p. 574. A sketch of the history of expert evidences of handwriting will be found in the *Juridical Review* for April 1890.

† The incredulity with which lawyers receive scientific testimony is frequently the result of ignorance. Best cites a case in point ("Evid.," p. 653). "In the infancy of travelling by steam on land, a civil engineer of high reputation, having deposed before a Parliamentary Committee that steam carriages might very possibly be expected to travel on railroads at the rate of ten miles an hour, the interrogating counsel contemptuously bade him stand down, for he should ask him no more questions, and the weight of the evidence he had previously given was much impaired."

‡ The Patent Law has faced and overcome the difficulty which still harasses the science of medical jurisprudence. The Parliamentary Reports on the Patent Law of 1829, 1851, 1865, and 1872, contain a mine of information on this subject, infinitely valuable by way of analogy; and cf. 31 & 32 Vict. c. 119, s. 26, and for practice prior to this Act see *Webb v. Manchester and Leeds Railway Co.*, 1839, 4 Myl. & Cr. p. 121.

other than a criminal prosecution by the Crown. The omission of the words in italics would give the judicature in England a practically unlimited power of summoning assessors, specially qualified, to aid the determination of any medico-legal issue that might arise in the trial of any cause, civil or criminal.

The problem of how to adjust the mutual relations of judge and assessor has been solved by anticipation, by Lord Esher, the present Master of the Rolls—in his remarks on the functions of the Trinity House Masters in Admiralty actions—in the case of *The Beryl** (1884, 9 P. D. p. 141). The responsibility for the decision rests with the judge alone. The assessor advises the judge, and exercises an effective moral check upon his judgment. "On a question of nautical science," said Lord Esher, "it would be almost an impertinence in a judge to differ from the assessor's opinion."

After the general sketch of the history and prospects of medical expertism in England, it will be convenient to consider the present position of the experts in the Courts of Law as far as possible with reference to lunacy cases.

(1) **An expert is allowed to testify to the sanity or insanity of a party at the time of a transaction which is the subject of judicial investigation, if (but apparently only if) it was his duty to ascertain the fact.**

In *Martin v. Johnston* (1858, 1 F. & F. 122) the sanity of a testatrix was in issue. Dr. Mayo, the surviving medical attendant of an asylum in which she resided at the time of making the will, was allowed to state that she was sane on the day in question, and that her continuance under restraint was voluntary. A written declaration, however, signed by the witness and the other attendant physicians, all deceased, certifying the sanity of the testatrix at the date of execution, was rejected on the ground that the examination was not made on an official visit, and that therefore the certificate was not an official act. It is thought that this case supports the proposition as above stated.

(2) **An expert will not be permitted to state that upon the facts proved at the trial he is of opinion that a litigating or incriminated party is insane or the reverse, and thereby to usurp the prerogative of the jury. But he may be asked whether certain facts or symptoms, assuming them to be proved, are indicative of insanity.†**

* Cf. also *Ocean S.S. Co. v. Apear & Co.* 1890, 15 App. Cas. p. 41, per Lord MacNaghten.

† *Reg. v. MacNaghten*, 1843, 10 Cl. & F. pp.

(3) The opinion of an expert is not binding upon a judge or jury, and the weight to be attached to it depends upon its intrinsic reasonableness. (Cf. *Lovatt v. Tribe*, 1862, per Erle, C. J., 3 F. & F. p. 11.) There is some authority for saying that a judge may reject the evidence of a scientific expert who appears from his own statements, in examination in chief, incompetent to give an opinion upon the matter in question.* But in medico-legal cases a strong intimation of judicial opinion to the counsel tendering such a witness has usually been found sufficient.†

(4) **A witness is permitted to refresh his memory** in regard to any fact by referring to any thing written by himself or under his direction, at the time when the fact occurred or immediately thereafter, or at any other time when the fact was fresh in his memory, and he knew that the same was correctly stated in the writing. But in such a case the writing must be produced, and may be seen by the adverse party, who may, if he choose, cross-examine the witness upon it, and read it to the jury. So also a witness may testify from such writing, though he retain no recollection of the particular facts; but such evidence is received with caution. The proposition, which is adapted from the *New York Civil Code* (s. 1843), is an accurate statement of the English law as to the use of "notes" in evidence.‡ In the law of Scotland, medical and other scientific reports are lodged in process before the trial, and the witness reads them as part of his evidence to the jury, and is liable to be examined or cross-examined upon their contents. "The reason of this exception is founded on the consideration that the medical or other scientific facts or appearances, which are

211-12, followed by Lord Campbell, C.J., in *Bainbrigg v. Bainbrigg* (4 Cox, C. C. 456), and again on the trial of Palmer in 1856. Considerable latitude has, however, frequently been given to experts on this matter.

* This is clearly the case as regards the proof of a foreign law in an English Court. Thus, in *re Bonelli* (1875, 1 P. D. 69) Sir James Hannen refused, upon a point of Italian law, the evidence of an English barrister who had merely studied that law in this country.

† On the trial of Palmer in 1856, Mr. Grove, Q.C., one of the counsel for the prisoner, was proceeding to cross-examine a medical student who had assisted at the post mortem, upon the appearances caused by strychnine poisoning, when Baron Alderson stopped him, saying, "When you have here all the medical men in England, you had better not put such questions to an undergraduate of London University." (See *Times* report of this trial.)

‡ See Taylor's "Evidence," pp. 1179-87, where the authorities, none of which relate to medical men, are fully discussed.

the subjects of such a report are generally so minute and detailed that they cannot with safety be intrusted to the memory of the witness, but much more reliance may be placed on a report made out by him at the time when the facts or appearances are fresh in his recollection; while on the other hand, such witnesses have generally no personal interest in the matter, and from their situation and rank in life are much less liable to suspicion than those of an inferior class or more intimately connected with the transaction in question.* A medical witness is, therefore, permitted in Scotland to read his report as the best evidence of the facts he was called upon to examine.

(5) Although **medical works** are not directly admissible in evidence as authorities, an expert will be permitted while explaining the grounds of his own opinion to state that it was formed in part on the writings of his professional brethren, and to refer to such writings.

The authority for this view of the law is *Collier v. Simpson* (1831, 5 C. & P. 73). The plaintiff, a physician, sued the defendant for slander. The alleged slander consisted in an imputation that the plaintiff had prescribed improper medicines for a child. Sir H. Halford, then President of the College of Physicians, was called as a witness. He stated that he considered the medicine proper, and that it was sanctioned by books of authority—viz., the writings of Dr. Merriman and of Sir Astley Cooper. Tindal, C.J., observed: "I do not think that the books themselves can be read: but I do not see any objection to your asking Sir Henry Halford, his judgment and the grounds of it, which may be in some degree founded on books as a part of his general knowledge."

It should be observed that the date of this case is 1831, and that it was merely a decision *in nisi prius*. It would seem, however, to be the only authority in our law as to the admissibility of medical treatises in evidence. The theory of the rule under consideration may be stated thus:—If the authors of medical treatises are living, they ought to be called as witnesses (cf. *Reg. v. Palmer*, 1856, *Times Report*). If they are dead, there can be no cross-examination as to the grounds of the opinions expressed in their works. In *Collier v. Simpson*, Tindal, C.J., brought forward another reason in support of the rule. Pressed with the argument that "when foreign laws are to be proved, it frequently happens that a witness produces a foreign law book and

states it to be a book of authority,"* his lordship replied, "Physic depends more on practice than law!"

It is hardly necessary to observe that an expert is liable to be *cross-examined* upon medical authorities whenever he has referred to them in his examination in chief, or not.

(6) The scale of fees payable to professional witnesses who attend a trial † to speak to *facts* will be found in "Taylor on Evidence."

It is a matter of some difficulty to ascertain what the law with regard to **the fees of medical experts** really is. The following statements are made with some hesitation:

(a) A medical *expert* (probably) is not bound to obey a subpoena, requiring him to attend a trial and give evidence as to matters of opinion, and is not liable to attachment for his failure to do so. (Cf. *Betts v. Clifford*, 1858, per Lord Campbell, C.J., cited by Taylor; *Med. Journ.*, vol. i. p. 17. *Contra*, however, *Maasted v. Morris*, 1868, *ubi sup. cit.* p. 18.)

(b) In order, however, to avoid the inconvenience and expense of an action of damages by the party summoning him, the expert should obey the subpoena, and insist at the trial and before giving evidence upon a personal undertaking as to his remuneration being given by the party requiring his evidence or by his solicitor. *Webb v. Page* (1843, 1 C. & K. 23) appears to be a distinct and uncontradicted authority for the proposition. In that case—an action for negligence in carrying goods—a witness was called for the plaintiff to speak to the nature of the damage sustained by the goods (which consisted of cabinet work) and the expense that would be necessary to restore or replace the injured articles. Before being sworn, the witness applied for compensation for his loss of time, and the plaintiff's attorney was required to give his personal undertaking to that effect. "There is a distinction," said Maule, J., "between the case of a man who sees a fact and is called to prove it in a court of justice, and that of a man who is selected by a party to give his opinion on a matter with which he is peculiarly conversant from the nature of

* See an instructive instance of this in the Sussex Peerage Case, 1884, 11 Cl. & F. pp. 114-17.

† The duties of medical witnesses in giving evidence—a subject which lies beyond the scope of the present article—are most ably discussed by Dr. Taylor ("Med. Jur." vol. i. chaps. 1 and 2).

As to the protection against legal proceedings in respect of certificates signed by medical men, conferred by the Lunacy Act, 1890, s. 330, see *infra*.

* Alison, "Criminal Law of Scotland," pp. 340-2.

his employment in life. The former is bound, as a matter of public duty, to speak to a fact which happens to have fallen within his knowledge—without such testimony the course of justice must be stopped. The latter is under no such obligation. There is no such necessity for his evidence and the party who selects him must pay him.”

(c) A medical expert may bring an action for his costs and charges against the party who has employed him, if the latter has expressly contracted to pay him, and, even in the absence of such a contract, a jury might infer a promise to pay from the mere fact of the attendance of the witness at the trial.

-No action for costs and charges will lie against the solicitor of a litigant subpoenaing a witness unless upon an express and personal undertaking to pay.*

(d) The fees payable to an expert, and which alone he is entitled to recover by action (*Willis v. Peckham*, 1 B. & B. 515). (*Collins v. Godefroy*, 1 B. & Ad. 950), are in the discretion of the taxing officer, so far at least as actions in the Supreme Court are concerned: R. S. C., Ord. lxx. rule 27 (9). The decision of the taxing officer may be appealed against to the Court or a judge.

(e) A legally qualified medical practitioner who has attended at a coroner's inquest in obedience to a summons by the coroner is entitled to the following remuneration:—

For attending to give evidence at any inquest whereat no post-mortem examination has been made by such practitioner—one guinea.

For making (under the direction of the coroner) a post-mortem examination of the body of the deceased (with or without an analysis of the contents of the stomach or intestines), and for attending to give evidence thereon—two guineas. But no such fee as aforesaid is payable upon an inquest on a person who died in a county or other lunatic asylum, or in a public hospital, infirmary, or other medical institution, to the medical officer whose duty it was to attend the deceased. (*Coroner's Act*, 1887, s. 22). A. WOOD RENTON.

EXPRESSION, FACIAL. — The term is used here as referring to the appearances of the face which indicate mental states; we observe the face as an index of the action and balance of the nerve-centres. Observing a human face we note its form and proportions, the modelling of the fixed features, &c., that is its physiognomy; and also its colour, and conditions of mobility, that is its ex-

pression. The face is a very accurate index to the action of the brain, either side of the face can move separately, and the various mobile features may have separate action, hence the necessity of making scientific analysis as to whether an expression be symmetrical, and as to the area of the face in which it is localised.

The two sides of the face usually act together, each corresponding part on either side moving in equal degree—i.e., movements of the face are usually symmetrical. In three rather low class expressions—viz., winking with an eye, one-sided grinning, and in snarling, or uncovering one canine tooth—we see asymmetry of facial balance. The face may be divided into three zones for the purposes of analysing its expressions—the upper, middle, and lower. Draw two horizontal lines, one across the forehead, just above the superciliary ridge, the other at the level of the lower margins of the orbits; three zones are thus formed; in the upper we have the forehead above the eyebrows, in the middle the eyelids and their orbicular muscles, in the lower the nostrils, the greater part of the cheeks and the mouth and chin.

The varying expression of the face is due to variations of movement, however slight these may be. An expressionless face is one that does not move and vary in the tone of its muscles. The liveliness of the faces of children is due to every changing muscular tone, movement in the face occurring as often as in the fingers and other parts.

In analysing faces it is necessary sometimes to observe the tone of the skin; we often examine the parts of the face with a magnifying glass to determine the tone of the various facial muscles. Fine wrinkles may often be seen in the horizontal direction over the forehead, giving it a dull appearance; this is due to over-tone of the occipito-frontal muscles, and is a common sign of low neural development. In other cases frontal dulness may be due to vertical creases, or to lines radiating from the inner corners of the eyebrow produced by over-tonicity of the corrugatores supercilii. Over-action in the frontal muscles is common with low class brains, corrugation is a usual accompaniment of mental stress. In examining children in schools we found the following percentages of pupils with frontals over-acting:—

	Boys.	Girls.
1944 boys, 1987 girls in public elementary schools	1.1	0.1
2794 boys, 2550 girls in pauper schools—certified industrial and dumb children	2.8	0.5

* Taylor's "Evid.," pp. 1044-45; and see *Lee v. Everest*, 2 H. & N. 292, per Bramwell, B.

Tension in the muscles of the forehead with corrugation may be due to a strong light; the general make of the brain is indicated only by the average facial expression.

The tone of the orbicularis oculi, as seen about the lower eyelid, varies greatly; this is a trustworthy indication of the brain state, being toneless and relaxed in conditions of fatigue and exhaustion such as often accompany migraine. In a strong and healthy face the lower eyelid appears clean cut, and the rotundity of the eyeball can be seen underneath it; when the orbicular muscle is relaxed, the skin of the lower lid bulges forward, the under eyelid is full and baggy, or swollen.

We often see a face toneless, wanting in variation of expression, drooped, fallen, or too long from general muscular relaxation and want of stimulation from the brain; there may also be fulness under the eyes from relaxation of the orbicular muscles. Accompanying these may be a special mode of balance of certain muscles indicating mental anxiety, this character being increased or lessened by certain reactions, such as talking on certain subjects; thus we gain information as to the causation of the conditions observed, and reference to the origin of the anxiety may increase the expression seen. Now, making analysis and looking at the individual mobile features, we may find the length of face due in part to dropping the jaw; the appearance of anxiety is seen mainly in the frontal zone as fine corrugation producing some dulness specially in the mid-frontal region, and the expression is symmetrical.

We have often seen a fixed expression of mental anxiety in young children, and on questioning the parents and finding no apparent cause, we have in many cases gained the child's confidence, and drawn out its story of "terrors in darkness," visions, or mental trouble, which the little child would not before speak of because it was not understood. The expression of anxiety may be contrasted with that of bodily suffering. The facial expression of pain originating in the limbs or viscera is seen mainly in the lower zone, the angles of the mouth being drawn down.

In the face of a mother who has just lost her child, the maternal pain is shown by depression of the angles of the mouth; some years after the loss when memory has idealised the child, reference to the sorrow causes the expression of mental pain in the forehead.

If strong and unequal nerve-currents are sent to opposing muscles, a quivering or tremor of the part moved by the

muscles may result. Such action is often seen about the muscles of the mouth under the influence of "conflicting emotions." Suppose a child has hurt his finger, but is trying hard not to cry, we shall see the muscles of the mouth quiver, until finally the effect of the injury to the finger acting upon the nerve-centres becomes the stronger force, the angles of the mouth are depressed, and the outbreak of sobbing follows.

Normal conditions of brain are indicated in the face, as in other mobile parts, by variations in mobile expression identical with those seen in average subjects under similar external conditions; the contracted brow at sight of a certain man indicates mental antipathy.

Certain mental states appear to be antithetical because they cannot co-exist, or if coincidentally called up do not long remain together; this may be illustrated by comparison of the signs of exhaustion and laughter, or joy.

Fatigue or Exhaustion v. Laughter and Signs of Joy.

Little action.	Much facial action.
Face long and drooped.	Face tending to roundness.
Angles of mouth drooped, or line of mouth curved downwards.	Angles of mouth curved upwards, or drawn upwards and outwards.
Orbicular muscle of eyelids lax.	Orbicular muscle of eyelids in strong tone.
Face pale.	Face red, or even congested.
Eyes wander, face being motionless.	Looks straight at his friends.
Impassive, and not easily stimulated to action.	Expression easily increased by a word said.

The human face regarded as an index of mental states is always at the moment expressive of the balance of the nerve-centres, but is not apt for indicating mental changes unless it be free from any strong stimulus from without. We sometimes see a set facial expression accompanying some fixed mental state, the brain being maintained in one uniform balance of parts without change or spontaneity; such a face and brain are not apt for expression till that fixed mental balance is removed. Such a man on meeting a friend, if he recognised him would show but little fine facial expression. The head might be moved, the mouth opened, and words said, but still that fixed set expression might be unchanged. Some previous mental impression on the brain has for the time fast set his nerve-centres; they are not free to act. Contrast this with an active lively man whose brain is apt and free to receive and express all the impressions that may act upon it, and notice his

recognition of a friend. His face presented much spontaneous variation of expression before the recognition, but at the meeting with his friend facial movement is much increased thereby; the mouth widens and is opened, the tone of the orbicular muscles of the eyelids is increased, and any kind of settled expression in the forehead is superseded by action.

Individuality in facial expression depends doubtless in large degree upon the physiognomy, not only as this may be determined by the proportions of the skull beneath the face, but also by the conditions of form and tissue-tension as determined by the condition of nutrition and vascularity at the moment. Very slight absorption of facial fat lowers tension under the skin, allowing it to become finely wrinkled and dull, while the eyeballs sink slightly into the orbits; individuality of appearance is thus partially lost during illness. Tension of the skin of the face from increasing fatness makes the face bright, independently of play in the muscles beneath.

Quickness of expression, as well as the special reaction occurring in the face, are important to observe. The time of reaction gives character to the mental act. An average quickness of reaction in adapted movements usually corresponds to quickness in mental processes. With the slow and comparatively motionless face indicative of exhaustion, the mental processes are slow.

The *march of facial expression* is always noteworthy. It may begin about the mouth or in the frontal region; it may commence as a fine or as a coarse movement, and the antecedent word heard or thing seen may indicate the cause of the mental change corresponding.

Looking at the face of a middle-aged man we see more than the signs of physiognomy and present action of brain-centres upon facial muscles—there are the impressions left by all past mobile expression, the influence of past thoughts, the character of the man, or the summation of impressions received and acts performed.

Expression about the face is due in part also to the eyeballs and to the muscles of mastication. Intelligence is more indicated by the facial than by the temporal and masseter muscles.

Passing on to speak of the eyes—we refer to the eyeballs, not to the eyelids—the action called staring may be due partly to the eyeballs being immovable for some seconds, and in part to retraction of the upper eyelids; each element should

be observed separately. In noting movements of the eyes distinguish movements in the orbits from turning of the head with the eye towards the object looked at; the two acts are different. Movements of eyes in the orbits indicate action of small muscles, movement of the head is effected by larger muscles. The infant often moves its head without moving the eyes; movement of eyes in the orbits is the sign of greater intelligence.

Movements of the eyes are not equally common in all directions; more movements occur in the horizontal direction than in the vertical. When the eyes turn towards objects, this is due to their muscles being stimulated by brain currents generated by the sight of the objects. In observing movements of the eyes, notice whether or no they are obviously guided by sights or sounds around. Movements of the eyes not controlled as to their number and direction by circumstances, present or immediately antecedent, must be called spontaneous, and looked upon as signs of nervousness. Irregular movements of the eyes are common in children, and are very significant of the brain condition; they may be looked upon as analogous to spontaneous twitchings of the fingers. The size of the pupil of the eye should be observed, and whether it contracts to light; its size may also be determined by the brain state.

Abnormal conditions of brain are as clearly indicated in the face as marks of average mental action; they may conveniently be grouped as congenital or developmental, and as pathological, whether due to temporary or permanent lesions.

The most common type of low class developmental expression among young children is a small head, narrow between the temples, forehead shallow with retreating inclination, and hairy and dull, with fine horizontal lines, the frontals perhaps occasionally acting coarsely, either spontaneously or on any stimulus to the senses. The zygomas frequently overact, producing grinning; the orbicular muscles of the eyelids not being relaxed if the general health is fairly good. There is absence of the constant fine variations of expression normal to the age, and changeful expression appropriate to the stimulus does not occur on stimulation through the senses, while such expressions as are seen may be slow in action and in occurrence after excitation.

Accompanying this may be feeble postures of limbs and spine as described

in article on POSTURE (*q.v.*). It is not uncommon to see awkward, silly movements in the faces of children, such as frequent frowning, and grinning on one or on both sides; such habits are not intellectual, and should be checked, if possible, in early life. They often depend upon causes which can be removed.

In the face of the epileptic patient we often see the signs of exhaustion as given above, and this is at times accompanied by a fixed stare—or this may be marked at commencement of a fit. The face is not only motionless, the upper eyelids may also be retracted, and the eyes fixed. Fixed facial expression may be alone, or accompanied by twitching fingers.

In chorea the facial movements are more symmetrical than those of other parts of the body, and they are mainly seen in the lower zone; the eyes and the elevator of the upper lid are much moved in severe cases, giving a staring expression; the sclerotic above the iris may be momentarily exposed.

Ptosis, or partial drooping of eyelids lessening the width of the palpebral fissure, is seen as a symmetrical condition in some cases of brain fatigue, and is pronounced as sleep supervenes.

In sleep, physiological coma, and many other conditions of brain where responsiveness and impressionability to sensory stimulation are lost, the tone of the orbicular muscles of the eyelids is increased, the elevator being relaxed, and considerable traction required to raise the lids; the pupil is then seen minutely contracted, the eyes moving slowly and spontaneously in every direction, independently of one another. This may be seen in anæsthesia from chloroform and ether. In exhausted subjects, and in some as a physiological condition, the tone of the orbicular muscle in sleep is insufficient to keep the lids closed.

Interesting facts may be given of coincident action in the movements of the head, face, eyes, and hands, but this is beyond the scope of our article.

It has been shown by M. Charcot and others that the face may present a marked want of expression, though still capable of coarse movement, as in laughing, &c.

Hemiplegia, or any form of one-sided brain disease commonly affects the lower zone of the face, weakening the muscles, and moving the angle of the mouth on the opposite side to that of the brain lesion. This is best seen on the finest facial movement, better when the patient smiles than when he laughs. The lower zone is most expressive of brain disease both

when the expression is spasmodic as in incipient chorea and convulsion, and when it is paralytic.

FRANCIS WARNER.

EYE SYMPTOMS IN INSANITY AND THE EXAMINATION OF THE EYES IN THE INSANE.—Retrospect.

—The writings of those observers who first made systematic use of the ophthalmoscope in cases of mental disease gave colour to the supposition that changes in the optic papillæ, retinae, &c., important from a diagnostic and prognostic point of view, were to be found in a very large proportion of patients suffering from almost all the varieties of insanity, and that consequently the use of the ophthalmoscope would prove of great assistance to those in medical charge of the insane. More recent observations have all tended to detract from the brilliant promise set forth by the earlier writers, and this holds, although the improvements in the ophthalmoscope and greater adeptness in its use, in addition to new and more accurate methods of examination, have furnished us with probably a much more correct knowledge of the frequency with which ocular symptoms occur in insanity, and the value of such symptoms in general as well as in special diagnosis, that is cerebral localisation. We have learned to a certain, though still too limited degree, the pathological conditions upon which such symptoms depend.

While in some forms of mental disease it is justifiable to attribute the eye symptoms to the brain lesions, as for example, the motor derangements of the iris so frequently met with in general paralysis of the insane, in others there is often considerable doubt whether or no the cerebral disease stands in causal relation to the eye symptoms. In all cases we must be cautious in the interpretation and value we place upon the latter.

The difficulty is increased, moreover, by the obstacles to the careful examination of physical signs in lunatics, which are so often met with. This is perhaps especially true of ophthalmoscopic examinations. The greatest patience is indispensable, and even with this, in not a few instances, we shall be reluctantly compelled, after repeated trials, to confess that the examination is impracticable or the results obtained unreliable. Now and then in cases where it is believed that careful ophthalmoscopic examination is important and the patient is unruly, it is wise to administer a general anæsthetic, as we occasionally do in young children. The necessity does not, however, frequently arise, and general anæsthesia should not be resorted to un-

less repeated attempts to make a satisfactory examination without such help have ended in failure.

Method of Examination.—If the condition of the patient will permit, subjective tests should be first employed to ascertain, as accurately as possible, whether or no there is failure of vision, and to gauge the degree of such failure if present. For this purpose, the usual test types are the most convenient and most practicable; Snellen's or Monoyer's types for distant vision, and Jaeger's or Snellen's types for near vision, should be employed.* Both near and distant vision should be tested, for the obvious reason that a patient who is myopic, but whose acuteness of vision is good, may not see the distant types at all and yet may easily decipher the smallest type of the reading card. Conversely, a hypermetrope may see the distant types clearly and yet be unable to read the small print. One other necessary precaution is to remember the effect of presbyopia. Many people on the far side of forty-five will, on being questioned, say that their sight is defective, and on examination it will be found that they cannot see to read or write. If presbyopia alone be the cause, suitable convex lenses will at once remedy the defect.

In illiterate patients there are substitutes for the test-types which may be employed. For example, a patient may be given a needle to thread to test his or her near vision, or if this be inadvisable in a lunatic, he or she may be made to thread small beads or pass a thread through pin holes in a card. A common but not accurate test for distant vision is to ask the patient to tell the time on a clock at the end of the room, or for near vision on a watch held up at one or two feet from him.

It has been stated by some writers that in the majority of insane patients the answers to subjective tests of this kind are quite unreliable. It seems almost unnecessary to point out that this statement is only partially true. Patients may and do refuse to open their lips when asked to read the types, although their vision may be good. In such instances the test is valueless. But if the patient reads the types correctly it is satisfactory proof that he sees them and his acuteness of vision may then be recorded accurately in terms of these test-types. The present writer has not often failed to get patients to read or at least to pick out words on the test-type card.

* These types may be obtained, mounted or unmounted, from most of the London opticians. For instruction regarding the use of these types the reader is referred to text-books on ophthalmology.

These tests of visual acuity should be followed by an examination of the pupils. For this it is well to be provided with a pupillometer. The size of the pupils is always denoted in millimètres and generally the transverse diameter is measured.

In an examination of the pupils the patient should be placed with the eyes exposed to diffuse daylight and the following points should be noted:—(1) Size and shape, regularity or irregularity of outline. (2) Equality or inequality. (3) Reaction to light, direct and consensual. (4) Reaction with efforts at accommodation and convergence. (5) Reaction to sensory stimuli, as, for example, the application of a faradic brush to the skin of the neck or other part.

It is always necessary to examine both eyes for pupillary symptoms, and sometimes it is difficult to decide which is the abnormal pupil or whether both deviate from the healthy state. We must in every case exclude such causes as posterior and anterior synechia which give rise to pupillary irregularity or inequality. The occasional existence of permanently unequal pupils in healthy individuals must be borne in mind. In such instances the reactions are undisturbed.

After the investigation of the pupils is completed, ophthalmoscopic examination should be made, and for this purpose we always advise the use of a mydriatic. Widely dilated pupils facilitate the observer's work considerably and the results of examination, especially in restless patients, are rendered much more satisfactory. The most convenient mydriatic to use is a combination of hydrobromate of homatropine and hydrochlorate of cocaine, the action of which upon the iris is very rapid and the effect of short duration. Lamels, or discs, containing $\frac{1}{50000}$ grain and $\frac{1}{500}$ grain, of these drugs respectively are obtainable and constitute a very portable and easily kept form in which to have them. Homatropine alone, in lamels, or in 1 per cent. solution, is also of great service, but its effect is less rapid and less powerful than that of the combined drugs.

The best mode of examination is undoubtedly the so-called "direct" method, but it is impracticable in some cases, especially in bed-ridden patients, and we must then rely upon the "indirect" method. The chief advantage of the former consists in the much greater magnification in the ophthalmoscopic image, whereby minute changes in the fundus are rendered visible. It is perhaps not altogether superfluous to remind readers of the differences between the images obtained by these two methods.

The "direct" examination enables us to see the parts of the fundus oculi in their correct position—*i.e.*, the image is "erect;" in the indirect method, on the other hand, everything is inverted; the upper edge of the optic disc is seen as the lower edge in the picture, and *vice versa*. Therefore, in making notes of appearances we should always state which method is employed, or use the terms *apparent* and *real*—*e.g.*, "the *apparent* upper edge of the disc was obscured."

Care must always be taken not to interpret as evidence of disease, appearances in the fundus oculi which are merely congenital anomalies. Many of these are due to arrested or perverted development; others are individual peculiarities in anatomical structure.

Those most commonly met with are coloboma of choroid or optic nerve-sheath, or of both, physiological cupping or excavation of the optic disc, and so-called "opaque nerve fibres in the retina."* It is also necessary to be on our guard in other directions. We have not very infrequently known slight but unobserved changes in the normally transparent media lead to erroneous statements regarding the ophthalmoscopic appearances of the fundus, and hence these media, cornea, aqueous, lens and vitreous are always to be carefully examined.

The condition of the extra-ocular muscles may also require to be investigated. This is done by getting the patient to execute the various movements of the eyes and eyelids and by noting carefully whether there is any deviation from parallelism of the optic axes or loss of movement in the lids. Conjugate deviation of the eyes may be present with no loss of parallelism. We must be on the look-out for cases of convergent concomitant squint in which there is defective vision in the squinting eye. In such a case there is little or no appreciable loss of movement, the squinting eye following almost if not quite fully all the excursions of its fellow. An eye which has formerly squinted but has regained its normal position will probably be amblyopic but may present no changes recognisable by means of the ophthalmoscope. Its refraction will generally be hypermetropic.

Before treating of what we may term special eye symptoms—*i.e.*, symptoms of special import in mental disease—it will be well to refer briefly to some ocular changes which may afford valuable assistance. A careful examination of the corneæ by strong focal illumination may reveal evidence of previous keratitis and thus help to decide as to a hereditary syphilitic

taint. Pigment deposits on the anterior lens capsule and posterior synechiæ, the result of iritis, may also be of assistance, as additional presumptive evidence of syphilis either acquired or inherited. Other common causes of iritis, such as rheumatism, should be excluded if possible. A history of one attack of iritis, usually bilateral, lasting for two or three weeks or longer, and never relapsing, is strongly in favour of acquired syphilis. The choroid may also be a valuable witness; disseminated choroiditis or choroido-retinitis in a large majority of cases is of syphilitic origin; when due to inherited syphilis, the changes consisting of patches of atrophy, often partially or wholly covered by black pigment, have their seat of election in the peripheral part of the choroid, the rest of the fundus generally, but not invariably, appearing nearly or quite free from disease. Hence, unless the pupils be dilated by a mydriatic and the periphery examined such changes may easily be overlooked. The presence of retinitis pigmentosa, recognised by the peculiar delicate lace-like arrangement of pigment in the retina, and, except in a very early stage, the atrophic pallor of the optic disc and shrinking of the retinal arteries, is a sign of some value in view of the not infrequent concurrence of this disease and defective intellectual development, and its known occurrence with greater frequency in the offspring of consanguineous marriages.

General Paralysis of the Insane.— Oculo-Motor Symptoms.

(1) *Affection of the External Ocular Muscles; Third, Fourth and Sixth Nerves.*—Partial or complete loss of power in these muscles occurs in a small percentage of cases; the affection is generally unilateral, but we occasionally meet with paralysis of both external recti (sixth nerves). The paresis may be so slight as to give rise to no evident loss of parallelism of the optic axes, but if there is not much mental obfuscation the patient will complain of most troublesome double vision. On the other hand, there is at times very marked paralytic strabismus with inability to move the eye in the direction of the paralysed muscle, and in such an instance diplopia may not be noticed. These ocular paralysees are often transitory and vary in degree. In other cases we find a slowly progressive affection ending in complete or almost complete loss of power in all the extra-ocular muscles, the condition described as *ophthalmoplegia externa*, and this may accompany paralysis of other cranial nerves, such as the seventh. In paralysis of the third nerve alone the eye

* See Text-books on Ophthalmology.

diverges and cannot be rotated inwards, upwards, or downwards; ptosis (drooping of the upper lid) is also present. If the sixth only be affected there is convergent strabismus with loss of outward movement from paralysis of the external rectus. Paralysis of the fourth nerve, which supplies the superior oblique muscle, is difficult of diagnosis even in a sane person. There is in such a case very marked homonymous diplopia below the horizontal plane, and the image perceived by the squinting eye—*i.e.*, the false image—is on a lower level than the true image, is tilted towards it, and appears to be nearer to the patient. An isolated ocular paralysis is nearly always a transitory symptom, and the sixth nerve is the one most often affected. Paralysis of a single third nerve muscle—*e.g.*, inferior rectus—has occasionally been met with. Voisin states that in some such cases the cause is to be found in a fatty or granular degeneration of the muscle itself. The cases in which paralysis of ocular muscles occurs are almost always those in which spinal symptoms are present, generally indicative of degeneration of the posterior columns of the cord; such are tabetic gait, loss of knee jerks and more rarely paraplegia. There are also frequently pupillary symptoms and rarely evidence of bulbar disease (Westphal). The morbid conditions upon which these paralyzes depend are probably not always the same. Degeneration of the nerve trunks has been found post-mortem, and in some cases, as mentioned above, degenerative changes in the muscle, while in a few instances disease of nuclei has been present. It is probable that in the cases of transient ocular palsy the cause is to be found in a degenerative change in the nuclei; the degeneration becomes arrested in an early stage and is followed by recovery (Gowers). It has been stated by a high authority that tabetic degeneration of peripheral nerves has not been found in the motor trunks. It is perhaps not unlikely, as suggested by Houcin, that paralysis of a single ocular muscle may be due to a cortical lesion; as in cases of ptosis in which he has found morbid changes in the neighbourhood of the *pli-courbe*. It should not be forgotten that ptosis, very seldom complete, is met with as a congenital defect, often one-sided, and that more rarely imperfections of the extra-ocular muscles exist, which in general features very closely resemble cases of ophthalmoplegia externa. The frequency with which syphilis stands in causal relation to ocular paralysis in patients without psychical disorder must not be lost

sight of in the investigation and treatment of similar affections in the insane.

(2) *Intra-ocular Muscles*.—The derangements of the motor functions of the iris and ciliary muscle (third and sympathetic nerves) are shown by various symptoms which it will be convenient to consider under three headings.

(a) *Alterations in the size and shape of the pupils*.—The pupils may be unequal in size, and this inequality may be due to the dilatation or contraction of one pupil, its fellow remaining of normal size, or to contraction of one and dilatation of the other. Again, both pupils may be contracted to pin-hole size or widely dilated. The smallest pupils which we have seen in a general paralytic measured 1.5 mm., and Bevan Lewis records two cases with similar measurement; in one of these only one pupil was so contracted. The shape of the pupils may be oval, with the long axis vertical or horizontal; pyriform pupils are also not uncommon, and generally in such instances the small end is uppermost.

(β) *Alterations in the reactions of the pupils*.—Pupils in health have three recognised reactions, *first*, reflex contraction to light, both direct and consensual; *second*, reflex dilatation on stimulation of a sensory nerve; *third*, contraction in association with efforts of accommodation and convergence. The derangements may include all degrees of retardation in these reactions or loss of all three. More commonly, however, we meet with loss of the light reflex with retention of the associated movement. This latter condition is known as the Argyll-Robertson pupil or *reflex iridoplegia*. Loss of the associated action of the pupil alone is very unusual but has been known to occur. If present it is generally combined with cycloplegia. Loss of, or great retardation of, the sensory or sympathetic pupillary reflex is a common early symptom in general paralysis.

(γ) *Paralytic affection of the ciliary muscle, or cycloplegia*.—This symptom is almost always associated with partial or complete paralysis of the sphincter pupillæ and consequent dilatation of the pupil. The evidence of its existence consists in failure of vision for near objects, and is especially noticeable in hypermetropic or emmetropic eyes. For particulars regarding the pathological conditions which give rise to these abnormalities (*see PUPILS*).

In general paralysis each or several of the departures from normal which have been mentioned under headings (a), (β), (γ), may occur. Most common are inequality of pupils, loss of cutaneous reflex dilatation, and loss of light reflex. Inequality

of the pupils is present at some stage of the disease in a very large proportion of cases; from 50 to 80 per cent. is given by different writers. The right or the left pupil is the larger in about an equal number of cases, and the side on which the larger pupil is, appears to have no constant relation to the mental condition, as was formerly stated. In an early stage there is not generally much alteration in size, but one pupil may be moderately dilated and sluggish in its reactions, or both pupils may be markedly contracted. The associated reaction of a moderate-sized pupil will probably be found equal to that of its fellow, but its reflex actions will be either impaired or lost. Bevan Lewis notes that the loss of pupillary dilatation to cutaneous or other sensory stimuli is generally the earliest of the iridal paralyses in general paralysis. In the later stages this moderately dilated pupil will probably become much larger with complete loss of its reflex actions, and very frequently the second eye becomes similarly affected, though its failure is not consentaneous with that of the first. Mydriasis (bilateral) with loss of reflex and associated actions is more common in the later stages of the disease, but, on the other hand, the pin-hole pupil may persist to the end, and retain its associated action unimpaired. Cycloplegia is not common till late in the disease. The condition of the pupil is not necessarily indicative in any way of the state of the optic nerve. There may be well marked atrophy of the nerve with proportionate failure of sight and without noticeable loss in the reactions of the pupil. On the other hand, well-marked pupillary symptoms are frequently seen in cases in which there is no loss of function in the optic nerve or visual centres.

The diagnostic and prognostic significance of oculo-motor, and especially pupillary, derangements has been very differently given by writers upon general paralysis. The decisive and broad statements published twenty-five or thirty years ago upon these points have not only not been confirmed, but have been very generally refuted; even in the writings of recent years considerable diversity of opinion appears to exist as to the localising value of ocular symptoms, and the help they may afford as regards prognosis. It is in consequence difficult to make statements which cannot be contradicted from already published records.

As previously mentioned, transient ocular palsies are probably due to nuclear disease, but it is by no means certain that peripheral nerve-changes may not sometimes be the cause.

The changes in the pupils are not often of much value in regional diagnosis. The statement sometimes loosely made that inequality of pupils points to localised disease is almost useless, unless the condition of the pupils as regards their alteration in size and their reactions be accurately noted; it is held by some observers, however, that permanent inequality is a very bad sign, and one writer (Knecht) states, in speaking of all forms of insanity collectively, that he has never seen a patient recover in whom the pupils were persistently unequal.

Extreme myosis succeeded by marked mydriasis is a bad sign (Mickle), and contracted pupils in acute mania must be looked upon as a fairly certain indication of approaching general paralysis. Spasmodic myosis is a condition frequently met with in the early stages of meningitis from any cause, and may prove a valuable contributory sign of such disease. The paralytic form is, however, of much greater import; it is frequently indicative of disease of the posterior columns of the spinal cord. Simple myosis of moderate degree, the pupil retaining its reactions to light and with convergence, usually points to disease of the cord in the region of the cilio-spinal centre. To this condition the name spinal myosis is given. When the Argyll-Robertson phenomenon (loss of the light-reflex with retention of the associated action of the pupils) is also present, we suspect disease higher up in the nervous tracts—viz., in Meynert's fibres—whereby a break in the connection between the optic and third nerve-centres is effected. A lesion in this situation may therefore be indicated without spinal disease, but the very frequent association of this pupillary abnormality with disease of the posterior columns of the cord has caused it to be considered as almost pathognomonic of *tabes dorsalis*. Loss of the reflex dilatation of the pupil, so often met with, may result from disease of the centre, which controls this reflex action, or from disease in any part of the afferent or efferent path. Both these paths are said to lie in the cervical spinal cord, but their course beyond this is less defined. Disease of the cervical sympathetic and of the cervical portion of the cord sometimes abolishes the reaction, but it has been retained after division of the former (the motor path), and it is nearly certain that the sensory impulse may reach the centre by one of the cranial nerves—e.g., fifth or auditory—and if so does not traverse the cervical spinal cord. Mydriasis, of the paralytic variety, is present in cases in which the optic nerves are diseased, so that

the light stimulus never reaches the pupil contracting centres which may be quite healthy. In such instances there is either no perception of light or vision is almost abolished, but reaction of the pupil in association with convergence will probably be retained. In one-sided mydriasis localised disease of the third nerve either at the centre, in the trunk, or in the ciliary ganglion may be suspected. According to Lewis, the dilated pupil of the late stages of general paralysis has a localising value and is found on the same side as the more deeply implicated hemisphere; the same observer considers that in unilateral convulsions the dilated pupil is on the side of the discharging or paralyzing lesion. Bilateral cycloplegia as a solitary symptom is of very rare occurrence, but if present would indicate very localised disease of third nerve-centres; if one-sided, disease of ciliary ganglion. It is much more frequently associated with loss of pupillary light reflex, and is then generally, but not exclusively, indicative of spinal cord disease.

Ophthalmoscopic Signs.—It may be broadly stated that the changes discoverable by the ophthalmoscope, which may be reasonably regarded as part of general paralysis, affect only those portions of the eye which, developmentally and functionally, are offshoots of the central nervous system; these are, it is scarcely necessary to say, the optic nerve and its terminal expansion, the retina; including, however, the blood-vascular system of these structures. Of course, evidences of disease in other of the component tissues of the eye are found in a certain number of cases, but they do not appear to bear any definite relation to the cerebral or spinal disorder, although, as previously mentioned, they may be of general value in diagnosis; such are choroiditis, iritis, some forms of retinitis, &c.

The alterations found in the optic nerves are those of slight inflammation (papillitis or neuritis) or of atrophy; it is still unsettled whether the former appearances always precede the latter. It is certain, however, that in a varying proportion of cases of general paralysis optic atrophy occurs. The records concerning its frequency are extraordinarily conflicting, and can only be reconciled by supposing that the observers whose figures give a large percentage of cases, considered as pathological, appearances which others, perhaps more conversant with the use of the ophthalmoscope, looked upon as physiological, and proved by tests of various kinds that the optic nerves in such cases had retained their functions unimpaired.

It may be generally stated that the percentages of cases in which optic nerve disease has been found have become gradually smaller in recent years. The high proportions of 95 per cent. (Tibaldi), and more than 77 per cent. (Clifford Allbutt), published some years ago, have been replaced by 18 per cent. (Wiglesworth and Bickerton), 17 per cent. (Mœli and Uthoff), and numbers of about these values. In cases examined by the writer the percentage is rather lower than the last two. In a recent paper on this subject, Wiglesworth and Bickerton divided all their cases presenting ophthalmoscopic changes in the nerves into four groups: (1) Simple hyperæmia of the discs; (2) the same with blurring of the disc margins; (3) simple anæmia; (4) distinct atrophy. This seems a good practical classification by which to tabulate cases.

(1) Simple hyperæmia of the discs has no well-defined meaning, and in many cases cannot be regarded as pathological. The difficulty in deciding whether the appearances are nothing more than simple hyperæmia is often considerable, even to practised observers.

(2) The changes under this heading vary a good deal in degree, and when, in addition to the blurring of the margins, there are evidences of slight swelling of the papilla, such as a fulness or bending of vessels at its margins, we have probably to deal with a low form of neuritis. These appearances in general paralysis are not very common in our experience, but we have notes of a few cases. It has been stated by some authorities that the appearances of optic nerve atrophy are always preceded by those indicative of neuritis; if the statement prove to be correct, the signs of inflammation must in many instances be so slight as easily to be overlooked. There is undoubtedly some pathological evidence in favour of pre-atrophic inflammation of the optic nerves. We have never seen, in general paralysis, well marked optic neuritis, like that met with in cerebral tumour, but the condition has been described.

(3) Simple anæmia of the optic discs has to be distinguished from the pallor due to atrophy, and this is not always an easy matter. In cases where much doubt exists, testing the acuteness of vision may be a great help.

(4) When undoubted atrophy occurs the ophthalmoscopic signs are usually fairly clear. There is pallor of the disc, generally of its entire surface, but in early cases most evident in, or confined to, the real temporal half, and occasionally appreciable diminution in the calibre of the

retinal arteries. The disc may appear grey or dull white. In the majority, as far as our experience goes, the surface and the margins of the papilla exhibit slight blurring and loss of detail. Unnatural sharpness of outline, and exposure of the lamina cribrosa in the central part of the disc, appearances generally observable in the so-called "primary atrophy," such as occurs in locomotor ataxy, are not, we think, common in general paralysis; on the other hand, unmistakable signs of previous neuritis, such as we are accustomed to see in "post-papillitic" atrophy in gross intra-cranial disease, are very seldom present. This agrees with the statement made above, that papillitis, in the ordinary acceptance of the term, is very rarely met with.

In all the cases examined by us, in which there has been pallor which seemed more than that of simple anæmia, the acuteness of vision was evidently reduced, often to a very considerable degree; but in a majority of the cases the mental condition precluded or rendered unreliable any tests whereby the degree of amblyopia could be accurately determined. In no single case was there complete blindness.

Microscopic examination of the atrophied nerves, in the writer's cases, revealed changes which consisted, speaking generally, in an increase or overgrowth of the connective-tissue elements and degeneration of the nerve fibres, the latter being in advanced cases scarcely recognisable as such, and presenting a granular appearance in section. The order in which these respective changes occur is uncertain, and it is not unlikely that they proceed *pari passu*; in some instances, decided increase in the connective-tissue nuclei is evident, and an abnormally large number of small blood-vessels are visible in sections of the nerve. In the *Ophthalm. Soc. Trans.*, vol. iii., and *Brain*, pts. xxv. and xxvi., will be found some illustrations of the histological appearances of atrophied nerves in general paralysis.

In a majority of patients with optic atrophy, symptoms of spinal cord disease are present. These, according to most observers, are generally indicative of sclerosis of the posterior columns, but in a certain number the lateral columns are affected. In our own experience the symptoms more commonly pointed to changes in the lateral columns.

Failure of sight due to optic nerve disease may be a very early symptom in general paralysis; in a late stage complete blindness may result. This, however, is not common (3 in 400, Billod), death usually ensuing before this stage is

reached. The amblyopia may first show itself, as it sometimes does, in the optic atrophy of locomotor ataxy, by defective colour-vision (Jehn).

The name *retinitis paralytica* was given by Klein to an abnormal condition, characterised by some loss of transparency of the retina and of the papilla, with slight blurring of the margins of the latter, and by irregularity in the calibre of the retinal arteries, a dilated portion being succeeded by a narrowed part; the veins are exceptionally affected in a similar way. This condition has not been found by all writers, but by some is said to be frequently present in general paralysis (nearly 50 per cent., Mauthner).

Eye Symptoms in Forms of Insanity other than General Paralysis.—We have but little definite knowledge on this subject, for though numerous observations have been made and published, the discrepancies between the statements of different writers are so great as to detract very considerably from their value. The opinion of most of the recent observers seems to be that ocular symptoms, especially ophthalmoscopic changes, which can be regarded as having any direct relation to the mental symptoms, are of rare occurrence; with this, from a limited experience, we agree. It is, however, only just to add that very different views are held by some whose opinions are entitled to consideration. About 65 per cent. of cases (Allbutt), about 15 per cent. (Mœli and Uhthoff), and about 18 per cent. (Wiglesworth and Bickerton), are stated to exhibit decided changes in the fundus oculi.

Pupil Symptoms.—Inequality of pupils is a rare condition (except after iritis) in the sane, but by no means uncommon in the insane. Knecht gives one-fifth of all cases as presenting either temporary or permanent inequality, but these figures include cases of general paralysis. This author, as previously stated, places reliance on the prognostic value of permanent inequality of pupils. Lewis states as the result of a large number of observations that inequality of pupils has a distinct localising value; that in cases of mental disease, epilepsy, &c., due to coarse lesions, the large pupil is on the same side as the cerebral disease.

Grouping all cases into **mania, melancholia, dementia, epileptic insanity, alcoholic insanity**, we may briefly refer to the ophthalmoscopic changes described in each group.

Mania, including acute and chronic and puerperal mania.

The changes to which importance can be attached as being possibly in direct

connection with the cerebral disease pertain to the optic disc; abnormally red or congested discs, with undue fulness of the veins, have been described by good observers. The pallor of discs thought by Allbutt to be due to spasm of the retinal vessels during maniacal states has not been confirmed, at least in recent years. The extreme difficulty attendant upon examination under these conditions renders it very doubtful if accuracy of observation can be hoped for. Our own opinion, founded upon the examination of a fair number of cases, is that if any changes are found in acutely maniacal patients, they are those indicative of congestion of the optic nerves, fulness of veins, and undue redness of the papilla; in one case Wiglesworth and Bickerton noted such appearances, and after the paroxysm the turgescence of the veins passed off.

Melancholia.—No pathognomonic appearances have been described. Allbutt noted anæmia of the retina very frequently. This is not surprising, considering the anæmic condition often present. We are not aware that anæmic neuritis has been recorded in cases of melancholia.

Dementia.—Cases in which ophthalmoscopic signs of disease exist are usually those associated with organic disease, such as chronic Bright's; in such instances the complication is responsible for the ocular conditions.

Epileptic Insanity.—The cases in which definite ophthalmoscopic changes have been found have nearly always been those in which there was evidence of gross cerebral disease. Mœli and Uhthoff found optic nerve-changes, slight neuritis, and "choked disc" in four out of thirty cases, but in three of these there were manifest symptoms (vomiting, hemiparesis, &c.) of coarse intra-cranial mischief. Observations upon patients during and after severe epileptic fits have led to the description of a possibly abnormally pink colour in the disc, with, in some instances, undue fulness of the veins.

Alcoholic Insanity.—Some of the German observers have found definite

changes in a small proportion of cases in this category, consisting of atrophic pallor of the temporal half of the disc. These changes are identical with those met with in toxic amblyopia, considered in Germany to be generally due to poisoning by alcohol, in this country usually attributed to tobacco. They are, in sane patients, accompanied by very characteristic symptoms—viz., defect of central vision, both for form and colour (central negative scotoma) without, in the majority of cases, limitation of the visual field, and, if the mental condition of the patients with alcoholic insanity permits, the same symptoms may be detected in them. The pathological conditions underlying these symptoms have been carefully investigated by Samelsohn, Uhthoff, Nettleship, Edmunds, and others. The detection of such defect of vision would be a valuable aid in determining the nature and cause of the mental aberration in a patient. An unusual condition of the retina, consisting of widespread haze, has been described by Mœli and Uhthoff in some such cases, and the conditions found by microscopical examination of the retina from a patient (not insane) who died of alcoholic paralysis are recorded in *Ophth. Soc. Trans.* 1889, p. 137.

In **Imbecility** no changes of diagnostic value have been recorded. The presence of congenital defects in the eyes is, we believe, not very uncommon. In cases of idiocy, or of slighter intellectual defects in the subjects of inherited syphilis, characteristic syphilitic choroiditis has been found, and in instances in which the hereditary taint is suspected, but not proved, the ophthalmoscope should always be used.

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[References.—Allbutt, *Med. Chir. Trans.*, 1868; Lewis, *West Riding Rep.*, 1876; Lewis, *Ophth. Soc. Trans.*, 1883; Lewis, *Text-book of Mental Dis.*, 1889; Westphal, *Allgem. Ztschr. f. Psych.*, 1883; Mœli, *ibid.* 1883; Uhthoff, *Bericht u. d. Versam. d. Ophth. Soc. Stuttgart*, 1883; Noyes, *Amer. Journ. Insan.*, 1871-72; Kuecht, *Irrenfreund*, 1888; Wiglesworth and Bickerton, *Brain*, 1884; Lawford, *Ophth. Soc. Trans.*, 1883; Oliver, *Trans. Amer. Ophth. Soc.*, 1889; Mickle, *Gen. Paral. of the Insane*, 2nd edit. 1886.]

F

FACIAL ANGLE. (*See* HEAD MEASUREMENTS.)

FACIAL LINE.—A line joining the most prominent part of the forehead in the median line with the alveolar process of the upper jaw; the more or less verti-

cal line which assists in forming the facial angle. (*Fr. ligne faciale.*) (*See* HEAD MEASUREMENTS.)

FACIES HYSTERICA (*facies*, a face, expression; hysteria, *q.v.*). The peculiar physiognomical expression given by thick

lips and a drooping of the lower lids, observed in hysterical subjects.

FACULTATES NATURALES (*facultas*, capability; *naturalis*, natural). The natural faculties, as those of reason, memory, imagination.

FACULTIES (*facultas*, capability; from *facul*, or *faculter*, an old manner of writing *facile*, easily; because the possession of such confers a power of speaking, thinking, or acting with ease). The special powers which the mind possesses through means of particular organs; applied to the feelings as well as to the intellect. The mental faculties were formerly, as by Dugald Stewart, distinguished from the instincts or instinctive operations of men and animals. By him the mental faculties were considered to be consciousness, perception, attention, conception, abstraction, association of ideas, memory, imagination, and judgment or reasoning, and to these he added the affections, desires, self-love, and the moral faculty. Murphy defines faculty as the ability of the mind to behave in a certain way either within itself or towards anything else. It displays itself in voluntary and conscious acts. Hence it is obvious that the faculties are as numerous as the forms of activity we find in the mind.

FACULTIES, EFFECTIVE (*facultas*; *affectio*, feeling). Those feelings of the mind which relate to the sentiments, feelings, and passions of man and animals.

FACULTIES, INTELLECTUAL (*facultas*; *intellectus*, from *intelligo*, I choose between). The mental faculties included under the names of perception, memory, imagination, generalisation, reasoning, and original conception. These are dependent on one predominant faculty, consciousness, which, if directed to the past, is memory, to the present, perception; if it suggests the ideal, it is imagination; if applied to thought synthetically, it is generalisation; if analytically, it is reasoning; whilst if it originates ideas intuitively, it is original conception.

FACULTY, MORAL (*facultas*). The recognition of right and wrong as guides to action.

FÆCES. (See EXCRETA.)

FAINTS. A popular term for the minor imperfect manifestations of epilepsy.

FALLACIA (*fallax*, deceitful). An illusion or hallucination.

FALLACIA OPTICA (*fallax*; ὀπτικὸς, belonging to the sight). An optic illusion or hallucination.

FALLING-SICKNESS. A popular term for epilepsy. (Fr., *mal caduc*; Ger., *Fallsucht*.)

FAMES BOVINA (*fames*, hunger; *bovinus*, pertaining to oxen). A synonym of Bulimia (*q.v.*).

FAMES CANINA (*fames*, hunger; *caninus*, belonging to a dog). Canine hunger, a synonym of Bulimia. (Fr., *addé-phagie*, *boulimie*, *faim canine*; Ger., *Ge-frässigkeit*.)

FAMES LUPINA (*fames*; *lupinus*, wolfish). Wolfish hunger. A term applied to that form of Bulimia in which the patient eats voraciously, and almost immediately evacuates the contents of the intestines. (Fr., *faim de loup*.)

FARM LABOUR. (See FITZ-JAMES, COLONY OF, and OCCUPATION.)

FASCINATION (*fascino*, I enchant, bewitch). A special condition of hypnotism described by Brèmand, being a mixed intermediate phase between catalepsy and somnambulism, produced either by a look, some bright substance, or by Luys' revolving mirrors. Fascinated patients hear and reply to questions, but the mental isolation is never so complete as in the higher form of hypnotism.

FASTIDIUM CIBI (*fastidium*, a loathing; *cibus*, food). Loathing of food from whatever cause.

FASTIDIUM POTUS (*fastidium*; *potus*, a drink). Loathing of drink from whatever cause.

FATUITAS ALPICOLARUM (*fatuitas*, foolishness; *Alpes*, the Alps; *colo*, I inhabit.) A synonym of Cretinism, from its frequency in mountainous districts.

FATUITAS CONVALLINA (*fatuitas*; *convallia*, a valley enclosed on all sides). A synonym of Cretinism in reference to the kind of locality in which it is common.

FATUITY (*fatuus*, silly; *fatuitas*, stupidity). Weakness of understanding or intellect, foolishness, idiotism or idiocy, silliness, stupidity. It is sometimes used as a synonym of Dementia. (Fr., *fatuité*; Ger., *Blödsinn*.)

FATUOUS (*fatuus*, silly). Foolish, imbecile, stupid, weak in intellect.

FAUNORUM LUDIBRIA (*faunus*, a faun; *ludibrium*, sport). A term applied by some to nightmare, by others to epilepsy.

FEAR OF BEING IN A VEHICLE. (See AMAXOPHOBIA.)

FEAR OF CLOSED SPACES. (See CLAUSTROPHOBIA.)

FEAR OF HEIGHTS. (See BATO-PHOBIA.)

FEAR OF OPEN SPACES. (See AGORAPHOBIA.)

FEBRIS EPILEPTICA (*febris*, fever; ἐπιληπτικός, epileptic). A fever with epi-

leptic symptoms during its progress. (Fr., *fièvre épileptique*.)

FEBRIS EROTICA (*febris*; ἐρωτικός, caused by love). An old term for chronic nervous fever, said to be caused by disappointed love. (Fr., *fièvre érotique*.)

FEBRIS HYSTERICA (*febris*; hysteria, *q.v.*). Either hysteria accompanied by febrile symptoms, or a form of intermittent fever in which each paroxysm is accompanied by hysteria.

FEEBLE-MINDEDNESS. (See DEMENTIA; IDIOCY; IMBECILITY.)

FEEDING (FORCIBLE) OF THE INSANE.—The forcible or artificial feeding of the insane should never be resorted to if it can possibly be avoided. In many cases, however, there can be no doubt that by its appropriate employment lives have been saved and patients have been restored to mental and bodily health. Some practitioners, like Conolly, are altogether opposed to it. Dr. Jamieson* states that he has not fed a patient himself for a year amongst 470 or 480. Dr. Rorie† has said that he has never had occasion to feed with the stomach-pump; he has always fed his patients with a spoon. Dr. Clouston,‡ on the other hand, has asserted that he thinks stomach-pump feeding is a capital thing, and quotes a case in which it was carried out no less than 8300 times, for a period of eleven years. In our own experience, we have fed ten males out of the last 100 admitted, and 8 females of the same number. Of the 100 males the form of insanity in 70 was mania, 14 melancholia and 16 general paralysis. Of the 100 females the form was mania in 66, and melancholia in 34 cases.

Refusal of food is most commonly found in delusional insanity. It is less frequently met with in hysterical, alcoholic, and puerperal insanity and dementia. It is rare in idiocy and imbecility.

In some cases one feeding by the mouth or nose will effect a cure. In others the patient seems to enjoy the process. A case has been known in which a lady would pass the mouth tube for herself. Some patients go on for months submitting to be fed, and gain flesh on this unnatural mode of deglutition.

Ætiology.—Persistent refusal of food is said to be more common amongst private patients than those of the pauper class. The causes of this troublesome symptom may be moral or physical. Moral causes would include grief, real or exaggerated, delusions and suicidal intention. This tendency in these cases is rarely confessed to, and such patients must be at

first incessantly watched. Delusions may be present regarding either the food itself, as that women's flesh is given to the patient, that it is bathed in human blood, that it is poisoned, or they may refer to the supposed inability of the patient to take food, as that his gullet is stopped up, that he can no longer digest his meals, that, being ruined, he is unable to pay for his food. Hallucinations may also act in preventing natural appetite, as that a voice commands that nothing shall be eaten, that a strong smell of sulphur in the air pollutes the food, that the meat is poisoned. For this last reason we should be careful not to mix drugs which have a distinct taste with the diet of the insane, such as jalap in cakes or senna in coffee, or we may create a refusal of food on fair grounds of suspicion (Hitchman).

In considering the physical causes of anorexia amongst the insane it must be remembered that there may and frequently do exist certain conditions which would naturally create a distaste for food and form just grounds for their delusions. Under this head would come a novelty of diet, or a coarse mode of serving the meal, as by placing before a toothless patient thick slices of bread and butter with no knife to assist him in disposing of them. Loss of appetite from neglect of exercise, dyspepsia, biliousness, constipation, any febrile condition, the abuse of alcohol or tobacco, or the presence of any organic disease of the stomach, hernia (inguinal or umbilical), or malignant stricture of the œsophagus should make us pause before disbelieving the patient's statement that he cannot swallow. When stoppage of the gullet really interferes with deglutition, the tube should be passed gently down till it stops naturally, and liquid food should be forced slowly by the stomach-pump past the obstruction. Loss of appetite is also common in paralysis of the bowel, the colon after death in such cases being frequently found distended to the size of a man's thigh and presenting the horseshoe displacement downwards so familiar to the pathological student.

The **moral treatment** of the refusal of food would include that by persuasions, threats, influences causing shame to the patient, and occasionally by yielding to some delusion or particular manner of taking food, as may be judged necessary in exceptional cases.

New patients, who have not had any long experience of asylum life, may frequently be persuaded to eat by a clever attendant. A man will often take food from a woman only, and a woman from a man. Some patients will only take food

* *Journal of Mental Science*, Jan. 1877.

† *Ibid.*, July 1875, p. 310. ‡ *Ibid.*

from some particular person, others only after the attendant has tasted every mouthful that they eat; others, again, demand that they should have only certain kinds of food as a vegetable diet, or that particular biscuits should be bought for them at a certain shop, which they eat almost exclusively. A patient of the writer's cooked his food for many years in his own room, believing that the attendants tampered with it. An affected indifference to the patient's want of appetite is sometimes of use, as by cutting up a cake in his presence, and offering it to all excepting the patient (Harrington Tuke). Allowing the patient to steal another's food is occasionally successful, or entering into a plot with him to rob the larder in the absence of the cook (*Idem*). More severe measures have been resorted to in certain cases. Esquirol pretended to flog a patient who refused food. But this was many years ago.

Delusions are rarely overcome by argument, and in certain cases it is found to be to the advantage of both patient and attendant to yield to them.

Patients who suspect that their food has been tampered with will sometimes eat eggs. Some will not eat when any one else is present, and must be left alone in a room with their food, or must be allowed to take their meals at a table separate from the other patients. Others prefer dining in company, and will eat more when the example is set by the hungry. Some will eat food if it is placed near them at night, and ladies especially may often be tempted by commencing with an anchovy sandwich, or some other dainty morsel. "L'appétit vient en mangeant," it is said, and when once the ice is broken we frequently hear no more of this troublesome symptom.

Shaming the patient is sometimes useful. In cases of obstinate hysterical insanity, the mere display of the feeding apparatus is sometimes sufficient to induce the patient to eat in a natural manner. Another useful plan is to make one patient see another fed with the tube, and to inform him that he will be fed in the same way unless he takes his food. At the West Riding Asylum, where there were occasionally as many as six patients to be fed three times a day, the writer was in the habit of making the melancholiacs hold one another down to be fed in turn. After a few trials the effect became so ridiculous that the patients used to laugh at one another, and eventually saw the folly of refusing food, and took it properly.

One patient, under the observation of the writer, would never take his food

unless he was allowed to lie flat on his back, and was fed by the wife of one of the attendants, which was done day after day. A private patient of the writer used to eat her food off a plate placed on the floor, as a dog would take his dinner.

Accessories to moral treatment of the refusal of food are found in a proper regulation of the rest and activity of the patient, plenty of open-air exercise on foot or in a carriage, the employment of gymnastics or games in moderation, excessive cleanliness, the use of baths, a proper temperature and ventilation of sitting-rooms and bed-rooms, early rising, regular hours, and the avoidance of sleep during the day. In some cases a change of the attendant is useful, and a strict attention to the quality, cooking, and mode of serving the meals is all important.

Rules for Feeding by the Mouth or Nose.—In the first place, it must be stated that we ought never to feed a patient artificially if we can persuade him to take his food in a natural manner.

The question as to how long a patient may be left without food is one of no little difficulty, and, of course, varies in each particular case. Speaking generally it may be said that, if a patient refuses three meals consecutively, he ought to be fed.*

If the pulse is thin, weak, and either too fast or too slow, and the patient has been long without food, active measures must be taken at once. On this last point, however, one is often deceived by the patient's friends, who will sometimes state that no food has been eaten for days, and who do not consider that beef-tea, milk, or any other liquid, should be called food.

If the general condition is one of emaciation, if the stomach appears to have fallen inwards, if the lips and tongue are dry and covered with sordes, and, above all, if there is an unmistakably foul smell in the breath, the indication is to feed as soon as possible.

There are two different smells in the breath. One is the ordinary odour that is perceptible in any person's breath who does not take proper exercise, or whose bowels are habitually constipated. The other is more offensive, and is dependent upon the action of the gastric juice upon the coats of the stomach, proving that actual decay is going on within. It is impossible to describe these stench—they must be smelt to be appreciated.

* Dr. Clouston has fed patients one hour after admission. Dr. Harrington Tuke says four days is the longest period you can allow to pass without feeding.

In many cases, however, where the patient is robust and obstinate, starvation will effect a speedy cure. But if such treatment is to be adopted, the patient must not be left for a whole day unvisited. He should be seen at least every six hours until food has been taken.

There are some symptoms which, if they do not actually forbid us to feed, should at least be taken into serious consideration. One of the most anxious positions a medical man can be placed in is where a patient is dying from refusal of food, and is yet too weak to be fed without danger of syncope. The patient has, perhaps, been kept alive by the tube for some days. At last a change comes over him. The attendants try to feed with a spoon. The patient spits out all the food. The physician arrives to feed as usual, and finds that it is too late; he does not dare to do it, although wishing to act for the best. The moribund condition should certainly make us pause before we administer food by any forcible method.

Other symptoms or diseases may considerably modify our determination to feed artificially. Such are disease of the heart, severe bronchitis, or emphysema, the condition of pregnancy, and especially, herniæ.

In one bad case under the writer's care, the straining and resistance of the patient to being fed caused an old rupture to descend to an alarming extent. A truss was procured and applied, and the feeding process was then conducted satisfactorily.

When Persuasion, Threats, and all Moral Means have failed, Feed at once.

The Position of the Patient.—This is a point upon which writers differ. When such high authorities as Drs. Bucknill* and Clouston† adopt the sitting posture in an armchair, we may conclude that there is some good reason for recommending it. It has this advantage: if the patient vomits, there is less danger of the liquid food passing into the larynx and choking him. But Dr. Lawrence has pointed out‡ that there is really much less chance of vomiting taking place in the recumbent than in the sitting posture, as the abdominal muscles are then at rest.

In the experience of the writer it takes much longer to tie a patient in a chair than to throw a sheet over him when he is lying down on a bed. Moreover, if the patient be sitting, the head cannot be

held securely between the knees of an attendant as it could be if he were lying down on a bed. There can be no doubt that the operator has far greater command over the patient than in the sitting posture, and for these reasons the writer usually feeds in that position.

A modification of the method of holding patients described by Dr. S. W. D. Williams* is the one preferred by the writer.

In ordinary cases four attendants are sufficient, one for the head, one for the gag, and one for each side.

In extraordinary cases, six may be necessary—one for the head, one for the gag, one for each arm, and one for each leg.

The patient is placed on his back on a firm mattress. The head is to be slightly raised on a pillow. If not undressed the patient's boots at least must be removed, and everything made loose round the neck.

The operator should not feed till all are in position. A patient's life has been sacrificed by his being held carelessly. In the case alluded to, the patient twisted his head round, the gag came out of his mouth, he bit off the stomach tube, swallowed it, and died. The attendants' hands should be as bars of iron, but the doctor's as springs of steel.

The most experienced attendant takes the head of the bedstead, or mattress, which may be conveniently placed on the floor, and on the pillow. With his hands he firmly holds the patient's head between his knees. A soft towel must be placed between the attendant's hands and the patient's head, to prevent the ears being injured. The attendant must spread out his hands, with his fingers widely separated, pressing downwards and slightly inwards, and, if necessary, bringing the power of the knees in by pressing them against the backs of the hands. The attendant's thumbs should be pressed upon the patient's forehead, and not upon the cheeks, or black eyes will be produced, for the insane are easily bruised. This attendant, in very mild cases, may also be trusted with the gag, but in most cases it is better that another person should hold it.

A strong sheet is then, or previously, thrown across the patient's body. His arms should always be outside the sheet, or they may be accidentally knelt upon. The sheet is then drawn tightly down over him, especially at the knees, but not over the chest, which should be left unconfined. Two attendants then kneel upon the sheet, one on each side of the

* "Manual of Psychological Medicine," 3rd ed., p. 755.

† *Lancet*, November 30, 1872.

‡ *West Riding Asylum Medical Reports*, vol. i. p. 26.

* *Journal of Mental Science*, October 1864.

patient's knees, so that the weight of their four knees is opposed to his two. The legs are thus held tightly in their place without the least risk of injury.

An attendant should never kneel upon any part of a patient, but this applies especially to the knees and elbows, which in general paralysis are liable to have enormous abscesses form on them from even slight pressure.

Each of the attendants then grasps one of the patient's arms, one hand is placed on the patient's wrist, and the other hand presses down the shoulders.

If six attendants are necessary, which seldom happens, the first takes the head; the second holds the gag; the third and fourth hold the arms, as above; the fifth and sixth kneel on the sheet at the knees, and use their hands to press down upon the legs of the patient, one hand being above and the other below the knee-joint. Holding the feet is useless and dangerous, as the smaller joints afford but little hold, and are more liable to be bruised and injured.

It is almost needless to remark that a man should never hold a woman down to be fed. The surgeon may show the attendants the proper positions, but should not assist at the actual feeding of a woman, except by passing the tube.

The operator may take off his coat and put on an apron to feed the patient if he thinks fit.

Methods of opening the mouth and keeping it open.—Sometimes the patient suspects the intention of the doctor, and clenches his teeth. As Dr. Williams remarks,* if the patient be a woman, the mouth is generally easily opened by getting her to talk.

In a difficult case of feeding under the writer's care, in which the patient was a Jewess, with extraordinarily good teeth, the mouth was opened by pouring in a mouthful of beef-tea, which made her cough and choke, and the teeth being parted in the act, the key was quickly slipped in between them, and the mouth was easily opened.

An attendant has shown the writer another method. The attendant kneels behind the patient. The thumb and the first and second fingers of each hand are brought into play on each side of the face.

The thumbs, being brought towards each other, compress the nose between them, the two forefingers raise the upper lip; the two middle fingers are pressed down upon the lower gums; and thus the mouth is easily opened.

Another way is by making pressure with the finger upon the gums at the back of the mouth, but in doing this the operator may be bitten.

Either end of a spoon may be used as a lever to open the mouth, but the teeth may easily be broken by such a proceeding.

The point of the ordinary screw-key, or of the fish-tail gag, may be used for the same purpose.

It has been found by the writer that although these steel keys are the most ingenious contrivances we can use for opening the mouth and keeping it open, there is the objection to them that the prongs of the key are somewhat in the way, and often project towards the back of the mouth, and thus interfere with the passage of the tube. He has, therefore, designed a gag intended to meet this objection.

This screw-key or gag is made of steel. It consists of two separate prongs, the bases of which are attached by hinges to a cross-piece. A screw, armed with a strong handle at right angles to it (like the handle of a corkscrew), passes through a hole in the cross-piece just mentioned, in such a manner as to cause the prongs to diverge as it is screwed onwards.

The gag being closed it is placed between the teeth, and as the screw is screwed onwards the ends of the prongs furthest from the cross-piece are separated, and the mouth is thus opened.

The writer has called this screw-key the "fish-tail gag," because when it is closed, the two prongs being brought close together form a thin wedge exactly the shape of a fish's tail, and this can be easily introduced between the teeth in a horizontal position. When once in the mouth it is turned at right angles into the perpendicular position, and the prongs, instead of being straight, are turned upwards and downwards, and thus one curls round the lower teeth and the other round the upper teeth in such a manner that the chances of the gag coming out of the mouth are reduced to a minimum.

Dr. Clouston* has remarked that in a bad case a small second gag may be held in the other side of the mouth. This is a valuable hint, but, if acted on, another attendant would be required for the second gag, and the attendants attached to each gag would have to be more than ever careful to keep the prongs of the gags from the centre of the œsophagus and towards the sides of the mouth; otherwise there would not be much room for the tube.

* *Journal of Mental Science*, October 1864.

* *Lancet*, November 30, 1872.

There are yet two instruments to be mentioned for opening the mouth. One is the wooden wedge, which resembles the vent peg of a beer-barrel, which was formerly used to open the mouth. The other is the wooden gag with a hole in it. The objections to the first are obvious, as it is a clumsy and brutal instrument. The wooden gag is objectionable, as it is very difficult to get it into the mouth. When there the patient can easily put his tongue against the hole in it and thus either prevent the entrance of the tube or get his tongue injured. If you do succeed in passing the tube over the tongue, which may be done by prolonged and steady pressure, you are then working in the dark, you are pushing a straight tube backwards, instead of a bent one downwards, and you cannot possibly tell where it is going. For these reasons the old wooden gag should be condemned.

Methods of Feeding and Apparatus.

Mouth feeding:—Not entering œsophagus: single spoon; two spoons; gag and spoon; feeding-cup; spoon and feeding cup; spoon and india-rubber feeding-bottle; funnel inserted behind the teeth; Paley's feeder. Entering œsophagus: stomach tube, without wooden end; ditto with wooden end; accessories to stomach tube; stomach-pump; Tosswill's stomach-pump; funnel; bottle with movable valves.

Nose feeding:—Not entering œsophagus: spoon emptied into nose; feeding-cup inserted into nostril; funnel inserted into nostril; enema syringe, inserted into nostril; bladder and quill pen; enema bag and mouth-piece of child's feeding-bottle. Entering œsophagus: flexible œsophageal nasal tube; gum elastic catheter; accessories to nasal tube; funnel; ear speculum; sponge bag attached to nasal tube. Other methods of feeding: by rectum (*q.v.*).

Formulæ for Diets.

For feeding by the mouth:—Breakfast: beef-tea, one pint and three-quarters; brandy, two ounces; castor oil, half an ounce. Dinner (if fed three times a day): the same without the castor oil. Tea; milk, one pint; one egg; one teaspoonful of Liebig's extract dissolved in cold water (Crichton Browne).

In prolonged cases of feeding the formulæ should be varied, and for the above may be substituted arrowroot, gruel with or without milk, beef-tea thickened with isinglass, flour, or the yolk of eggs (Harrington Tuke).

In some cases of vomiting milk is borne better by the stomach than beef-tea (Dr. Gream). Koumiss is also of great ser-

vice. Two eggs beaten up in warm milk, ale, or porter (Dr. Millar); thick custards; mutton mashed to a liquid pulp in a mortar (Clouston); roast chicken pounded in a mortar, to which is added milk (Harrington Tuke). Writer's formula: diastase three grains; Boudault's pepsin, fifteen grains; pearl barley, two tablespoonfuls; one raw egg beaten up; half a teaspoonful of salt; a small pinch of pepper; two glasses of brown sherry; strong beef-tea, a pint and three-quarters.

For feeding by the nose:—Milk, beef-tea, eggs, brandy, and every kind of fluid food and medicine may be used. If any farinaceous material is required, pearl barley is most appropriate, as it passes easily through the narrow pipe of Paley's feeder or through the nasal tube.

Ground meat, meal rice, sago, arrowroot, gruel, &c., may be passed through a large mouth tube, but not through the nasal tube.

Dr. Sankey recommends that strong ale should be given through the tube, but this would not be suitable in cases of melancholia associated with derangement of the biliary system.

In private practice we should inquire what the patient has been in the habit of taking in the way of food and stimulants. If he has been accustomed to high living a milk or slop diet would in many instances be inappropriate. Where money is no object, champagne and turtle soup, concentrated chicken or oyster broths and the strongest beef-tea that can be made should be ordered.

Dr. Leared's apparatus* is probably the best that has been invented for making strong beef-tea.

Dr. Henry Blanc has described a method of administering raw beef in a palatable form to phthisical patients, which would probably be of great service in treating those suffering from so depressing a disease as insanity requiring artificial feeding.†

Indications for the Different Operations of Feeding and Directions for performing them. In most cases where artificial feeding is necessary the most simple method should be tried first.

We should usually commence with *Apparatus not entering the œsophagus*, as, of course, there is always some slight risk to be encountered in passing the stomach-tube, although the danger of this proceeding has been much exaggerated.

In cases of obstruction of the œsophagus, or where the patient is in robust health, and if we wish to make the process as long and as disagreeable as possible, or if the

* See *Lancet*, Jan. 17, 1874.

† *Ibid.*, June 13, 1874.

operator is unskilled in the more difficult methods of operating, then spoon feeding is indicated. This simple method is also most appropriate in cases of dementia, idiocy, and imbecility. A common metal spoon is often sufficient (Clouston).

Feeding by the single spoon requires no directions for its performance, but it may be remarked that the teeth are easily injured by a spoon if any force is used. In cases where the patient spits out the food it may be well to put the left arm round his neck to steady his head, and the left hand may be used to press up the chin and keep the mouth closed till the food is swallowed. This method is useful for half-resolute melancholics, who fancy that there is no more powerful mode of forcing them to eat. It may be done in the sitting posture, and has the advantage that all kinds of food, solid and liquid, meat and bread can be administered.

Feeding with two spoons (Sankey). The patient may either sit or lie down. The supine posture is the best. The operator opens the teeth and keeps the mouth open with the first spoon, which he holds in his right hand. With the left hand he pours a spoonful of food (which must be liquid if the patient is lying down) from the second spoon into the first. He then gently touches the back of the pharynx with the first spoon. The patient's nose is at the same time compressed by an assistant, and the mouthful is swallowed by reflex action.

A common feeding cup or an india-rubber enema bottle may be substituted for the second spoon in the above process.

A funnel with its tube bent at right angles may be inserted behind the teeth, and liquid or semi-liquid food poured through it down the throat.

Paley's feeder is only a funnel with a spout shaped like a goose's bill. This spout is forced between the teeth, and when a spring is compressed the liquid flows down the patient's throat, the stream being stopped when the valve is relaxed at the will of the operator. A glass cover allows the surgeon to see through the top of the funnel and at the same time prevents the food being spilt.

In a case of excitement in the course of general paralysis the writer used Paley's feeder. The patient shouted all the time, and the liquid nearly choked him by entering the larynx. The stomach tube was afterwards used successfully.*

The tongue may be forced down by a spoon and liquid poured into the spoon to just fill it from a feeding-cup. When the spoon is full it is pushed back so as to

gently touch the pharynx. The nose being compressed, the contents of the spoon are poured down the throat of the patient.

The mouth may be opened by the screw gag and liquid food poured by a spoon gently down the œsophagus (Sankey).*

Apparatus entering the œsophagus.—The stomach tube for the mouth may or may not have a wooden end attached to it. This wooden end terminates in a *cul de sac*, and has two openings at the sides. The advantage of it is that if the end of the tube when passed impinges against the walls of the stomach, the fluid is not prevented flowing on through the side holes which are free. The disadvantages of it are that not being an actual part of the tube it might possibly become detached, and that, as the diameter of the holes is less than that of the tube itself, rice and other solid substances will not pass so easily as through a tube without a wooden end. If the tube without this appendage does impinge against the wall of the stomach, so that the food is stopped in its passage, this is easily remedied by drawing up a few inches of tubing. The tube without the wooden end is therefore to be recommended.

The stomach tube should be neither too narrow nor too broad. The broader the tube the more difficult it is to pass, but the narrower the tube the greater the danger there is of its entering the larynx. A tube measuring about 28 inches in length and $\frac{7}{16}$ of an inch in diameter, with a bore of $\frac{5}{16}$ of an inch is a good size.

In exceptional cases a tube double the usual size may be employed, through which meat and vegetables minced up may be forced by the stomach-pump down the œsophagus. A patient at St. George's Hospital was kept alive for twelve months by this method (Harrington Tuke).

In feeding with the stomach-pump it must be remembered that you press down the valve with the left hand at the same time that you press down the piston with the right. The advantage of the stomach-pump over the funnel is that more solid food can be forced through it than will flow through the funnel by mere force of gravity. The disadvantages of the stomach-pump are that the food being squirted by it against the stomach wall may irritate it and cause vomiting, especially in dyspeptic subjects, and also that the proper management of the valves is somewhat confusing during an operation already sufficiently complicated.†

* *Journal of Mental Science*, Oct. 1857.

† Tosswill's pump consists of a Higginson's syringe with a mouth tube attached.

The writer prefers the large funnel to the pump. Into this the basin of food is upset and simply gravitates into the stomach. A stop-cock is useful at the bottom of the neck of the funnel, so that if the patient chokes the flow may be at once stopped. The tube should also be withdrawn and the patient made to sit upright should there be any sign of the food having passed into the larynx.

An ordinary twenty-ounce bottle may also be used. This is perforated near the bottom by a small tap for the admission of air, and a long stomach tube is inserted into a cork which fits the mouth of the bottle. The food is mixed in the bottle and then the cork with the tube in it is placed in the mouth of the bottle. The bottle is then inverted and raised, and the air tap is opened. The food then flows by the force of gravity into the stomach (Yellowlees).*

Before commencing to feed, the operator should ascertain that the food is not too hot or too cold, and also if it is of a proper consistency. Brandy or medicines are then added to the liquids if necessary.

Passing the tube.—The surgeon first dips the end of the stomach tube into the warm liquid, which is better than oiling it or using glycerine or vaseline to lubricate it. He then takes it in his right hand. The last four or five inches of it should rest upon the palmar surface of the index finger. He then passes the finger and tube to the back of the pharynx, feels for the epiglottis, passes the tube over it into the œsophagus, and pushes on the tube. Some operators pass the tube without putting the finger into the patient's mouth. If this is done it is sometimes advisable to bend the last two or three inches of the tube downwards before passing it. About eighteen inches of tubing should be passed, and it should not be done too quickly. About four inches should then be drawn up to prevent the end adhering to the wall of the stomach. If this length of tubing has passed without any obstruction the operator may be sure it is not in the larynx. It is a good plan to have a white line painted round the tube about sixteen inches from the end to show when enough tubing has been passed, and this may also be done on the nasal tube.

In passing the tube there is sometimes a little pressure required to make it enter the œsophagus on account of its having to follow a slightly obtuse curve and coming into contact with the bodies of the vertebræ, which become prominent if the

head is held far back. This pressure may be reduced to a minimum by directing the tube a little to the left side, as the œsophagus inclines to the left in the upper third of its course, and by moving the head forwards when once the tube has reached the entrance to the œsophagus (Lawrence).*

If the tube should be stopped in its course it must be withdrawn and passed again. It should be remembered that occasionally there are real grounds for a delusion. In a case under the writer's care the patient affirmed that he could not swallow because his œsophagus was stopped up. The tube was carefully passed, and a stricture was found to exist. It was treated by passing the tube as far as the obstruction and gently pumping some liquid and oily food on to it by the stomach-pump. The fluid gradually dilated it, and the patient ultimately recovered. A case of death from the use of the stomach-pump has been recorded from the tube passing into a stricture of the œsophagus, probably malignant, in a patient who had attempted to poison himself by laudanum.†

The tube being passed, the fluid is upset into the funnel or injected by the pump into the stomach.

The tube is then withdrawn. It is better to hold the funnel or a basin under the patient's chin as this is being done, so that the end of the tube may fall into it, as some fluid always remains in the tube, which otherwise runs over the patient's night-dress.

The patient should be kept lying down when the feeding is over, as the operation generally causes no little shock to the nervous and circulatory systems. This is partly due to the struggle which almost always ensues, and to the anxiety which is frequently produced in the patient's mind by the process, and also partly due to some obscure nervous connection between the stomach and the heart through the medium of the pneumogastric and sympathetic nerves.

It is said that feeding the patient when under the influence of chloroform considerably lessens the difficulty of the process in extreme cases.‡

Washing out the stomach is said to give it a healthy tone.§

Electricity has been employed to pro-

* *West Riding Asylum Medical Reports*, vol. i. p. 20.

† *Lancet*, August 30, 1873.

‡ Dr. Harrington Tuke, Dr. Sherlock, and Dr. A. J. Sutherland, *Journal of Mental Science*, October 1857.

§ M. Régis, *British Medical Journal*, July 3, 1886.

* *Lancet*, May 19, 1888.

duce an involuntary reflex act of swallowing (Ritti).*

Nasal Feeding.—Indications for and against feeding by the nose.

If the patient is a lady with a good set of teeth, it is very important that on her recovery she should not find that any of them have been chipped or broken. The risk of such an accident is entirely overcome by the use of the nasal tube. Its use is also indicated in certain cases of passive melancholia, where the teeth are clenched with great force and where but little resistance is made to feeding by the nostril. In cases of severe bronchitis or emphysema, where there is much dyspnoea, it would probably be preferable to feeding by the mouth, and in feeding by the nostril the mouth is left free for respiration, whereas in feeding by the mouth the pharynx is partly blocked up by the tube, which is of course broader than the nasal tube. Nasal feeding is contra-indicated in patients who possess an unusual amount of co-ordination of their muscles. In such cases it appears that the patient is able to contract the muscles at the back of the pharynx at will in such a manner as to direct the point of the tube into the larynx and to cause alarming choking and blueness.

In a case under the care of the writer, in which feeding by the nose was attempted the patient twisted his tongue backwards behind the tube, brought it forwards between his teeth, and nearly bit it into two pieces. Fortunately a loop of the tube was seen to project out of the mouth, and it was rapidly withdrawn. The patient was afterwards fed successfully with the stomach tube by the mouth.

In feeding with the nasal tube great difficulty is sometimes experienced in passing it. This is especially the case in persons who have a sharp aquiline nose and contracted nostrils. But, as the septum of the nose is on one side in most people, if we cannot pass it through one nostril we may frequently succeed through the other without using any great force. The tube should be lubricated with oil, glycerine, or vaseline. The first passage of the nasal tube is always difficult. This is due to the accumulation of mucus within the nares. The attendant should therefore blow the patient's nose before the tube is passed, and clear away as much of this obstructing matter as possible. At the first passage of the tube it often gets blocked up with mucus. If the food will not flow through it it should be withdrawn, cleaned out, and re-inserted.

* *Journal of Mental Science*, p. 130.

Apparatus for nose-feeding not entering the œsophagus.—A spoon emptied into the nostril. Dr. Hack Tuke has described this simple method to the writer. He states that it causes but little inconvenience to the patient, and that in an asylum for a large number of patients it has been for many years the only means of forcible feeding employed.

Feeding-cup inserted into the nostril. "The patient should be in a recumbent posture. The surgeon stands on the right of the patient and a little behind, holding in his hand an ordinary earthenware invalid feeding-cup containing the nourishment. He then places the nozzle into the left nostril, closing the right with the thumb and the left nostril with the fingers of the left hand, steadying the head at the same time between his arm and side, the mouth being left perfectly free for respiration. The head being now slightly inclined to the patient's left the contents of the cup are allowed to trickle along the left wall of the nasal cavity into the pharynx, and thence to the stomach" (Phillimore).*

Feeding by a funnel inserted into the nostril. "Gently introduce a small funnel within, and only within, one of the nostrils, holding it there lightly and without pressure during the entire administration" (Moxey).†

Feeding by enema syringe inserted into the nostril. Dr. Hyslop has published a paper,‡ in which he recommends for nasal feeding the use of "a good clean pint enema bag with the nozzle cut off within an inch of the shield and the mouth-piece of a child's feeding-bottle drawn over the nozzle." Also "a bladder, to the mouth of which is fastened a quill pen. Through this, thin oatmeal-gruel and milk were poured down the nose into the stomach."§

A sponge bag and an elastic catheter may be used in a similar manner.

Apparatus for nasal feeding entering the œsophagus. Funnel and tube.—To the upper end of the metal tube may be affixed a funnel the size of a wineglass or ear speculum.

The tube itself should be either a gum elastic urethral catheter of the size of No. 3 or No. 6, or a flexible india-rubber tube about 24 inches in length, and $\frac{5}{16}$ of an inch in diameter, with a bore of $\frac{3}{16}$ of an inch.

The tube should be slightly bent, and warmed and oiled before it is passed.

Method of using the nasal tube.—The patient is placed on his back. The tube

* *Lancet*, Nov. 2, 1872. † *Ibid.*, Dec. 7, 1872.

‡ *Ibid.*, May 31, 1873.

§ *Ibid.*

is passed down one of the nostrils. If the patient chokes it is a sign that it is in the larynx. The tube should therefore be drawn up about an inch and then pushed on again. When it passes on freely without obstruction about fifteen inches should be pushed down the nose. The part of the tube remaining out of the nostril should then be held quite straight, in the vertical position, and there should be no bending, loops, or "kinks" in it, or the food will not pass. The food is then poured into the funnel and allowed to find its way down by the force of gravity. If the fluid will not flow on about an inch of the tube should be withdrawn, as the point of it is probably resting against the wall of the stomach. If the liquid still will not pass the tube must be withdrawn altogether and cleaned out, as it is probably blocked up with mucus.

When all the liquid has been successfully poured through the tube the funnel may be placed under the nose as the tube is withdrawn, to catch the fluid which remains in the tube, which otherwise may run over the patient's night-dress.

The patient should be kept lying down for some little time after the operations, although there appears to be much less shock to the nervous system in feeding by the nose than by the mouth.

Prognosis as to mental recovery is unfavourable if the general health improves whilst at the same time the intellectual condition remains unaltered. If, on the contrary, the patient loses flesh, although fed regularly, the tendency to death is very marked. This is probably due to nervous exhaustion and to some defect in the powers of assimilation.

HENRY SUTHERLAND.

FEELING OF DISGUST.—The feeling of disgust which a sane man has in regard to certain objects and acts is frequently lost in the insane. The German synonym is *Verlust der Ekelgefühle*—e.g., dirt-eating in various forms. This may be temporary during excitement, or become a chronic symptom.

FEELINGS, INSANITY OF THE.—The form of insanity in which there is no delusion, but perversion of the affections or feelings; a synonym of Moral Insanity (*q.v.*).

FEELINGS, PRESENTATIVE (*presento*, I place before). A term synonymous with Sensations, or those feelings in which an impression on some part of the body is regarded as pleasure or pain.

FEELINGS, PRESENTATIVE-REPRESENTATIVE.—A term employed by Hamilton synonymous with emotions or

those feelings in which a sensation or group of sensations arouses a large group of represented feelings.

FEELINGS, REPRESENTATIVE.—The ideas of the emotions when they are called up, apart from the appropriate external excitements, such as the emotions excited by a vivid description.

FEELINGS, RE-REPRESENTATIVE.—Those more complex sentient states which are less the direct results of external excitement than the indirect or reflex results of them.

FEIGNED INSANITY.—The question of the simulation of mental disease is one of the most difficult that can come under the notice of the alienist, and there is none that calls for more experience, acumen, and sagacity, if a satisfactory decision is to be arrived at. The facility with which diseases of the mind can be feigned has impressed the popular imagination from the earliest times, and literature is full of accounts of how insanity has been simulated in various ways and with various motives. Unfortunately the nature of the problems submitted to the psychiatric physician are not such as to permit of the application of methods of precision, and it remains to-day as much a matter of judgment in many cases to decide upon a man's sanity as it was in the days of the shepherd king or of the wily monarch who ploughed the sea-shore.

The frequency of simulation is a point on which high authorities have expressed the most diverse opinions. The experience of Schüle, who, when the second edition of his great book was published, had never seen a case, is remarkable. Casper, on the other hand, appears to have not seldom met with cases, and he very fully appreciated the difficulties which they presented. It is probable that varying conditions of society give rise to varying temptations and facilities for feigning. It is well known that of recent years the number of doubtful cases of insanity which have occurred among the rank and file of the British army has been so great as to be a cause of very serious consideration to the authorities.

The first thing to be borne in mind in examining a case where feigning may be suspected is, that insanity tends like all diseases to run a more or less definite course. The history of the case may be of the greatest use to us. The element of *heredity* must receive its due weight, but at the same time the physician will do well to be on his guard against allowing this or any one simple factor in the case to influence his judgment exclusively. The personal history of our patient is more

important. It very rarely happens, save in cases of the affection known as **transitory mania** (or transitory frenzy) that an attack of insanity comes on with fulminating rapidity. In ordinary primary cases the most acute attacks are preceded by longer or shorter intervals of indisposition, malaise, or peculiarity of some sort.

Though we cannot subscribe to the doctrine of a certain distinguished alienist that all cases of ordinary insanity (*i.e.*, insanity exclusive of general paralysis or organic disease) begin as melancholia, yet the prodromal stage of depression that precedes a first attack of **acute mania** is so general that it constitutes a distinct feature of the disease, and if, on careful search, we conclude that it has been absent, the circumstance would justify suspicion. Where there have been previous attacks this prodromal stage of melancholia may be little marked or altogether absent, but in such cases we have of course another aid in the history.

The intense excitement of acute mania in its typical form cannot be simulated with a fair prospect of success. The simulator soon becomes weary, and can only persist in his imitation by a very obvious effort. The peculiar rapidity of the associative processes producing a constant flow of ideas cannot be put on. Incoherence may be assumed for a little while, that is, incoherent words and sentences that have been carefully prepared can be repeated from memory, but the true incoherence of acute mania, the pouring out of a constant stream of words or sentences without apparent connection is impossible to the sane mind. Wherever this symptom can be distinctly made out, we may be satisfied that there is real insanity. Well-marked and continuous incoherence excludes the diagnosis of feigning. The motor restlessness of acute mania cannot be approached by the simulator, nor of course can the insomnia. If he rushes about till he is tired, he falls into a prolonged and deep sleep, and the amount of sleep is in direct proportion instead of being in inverse proportion to the degree of restlessness while awake. Profuse sweating accompanies the violent exertions of the simulator, and he soon becomes exhausted.

Similarly with **melancholia** of the active type, which cannot be feigned in such a way as to deceive the practised eye. Neither can profound melancholia of the passive form. He who tries to feign the intense self-absorption, the concentration of mind on depressing delusion, the indifference to surroundings, and the psychical anæsthesia which characterise this condition, cannot but fail. It is other-

wise, however, with some of the milder forms of melancholia (*mélancolie avec conscience, mélancolie raisonnante*), in which we are chiefly dependent upon the patient's own account of his feelings.

These conditions can be skilfully feigned in such a manner as to be most difficult of detection. We know that the reverse constantly occurs, and that the actual sufferers from such states elude observation.

In pronounced **melancholia** we almost invariably find a period before the symptoms have become distinctly typical, during which the patient was hypochondriacal, and suffered from mild digestive troubles, probably accompanied by præcordial anxiety.

Mental stupor (so-called "acute dementia") may come on with comparative rapidity, but the total apathy of this condition, at least when well marked, is probably not capable of being imitated, and it is not a sufficiently common condition to be liable to imitation. It is, moreover, a state that is very often connected with a well-marked exciting cause.

Acute hallucinatory insanity (the mania hallucinatoria of Mendel) often comes on with comparative rapidity and is sometimes very atypical in its course. The peculiar confusion that accompanies this condition, however, cannot be feigned. The simulator falls into the mistake of assuming a condition of imbecility instead of dreamy confusion.

There are certain **intermediate conditions** akin to stupor which seem at first sight to present points that might be readily imitated. Such are the hysteroidal forms of insanity, common between the periods of puberty and adolescence where the patient will grimace and exhibit himself in theatrical gestures, and seems to take a satisfaction out of talking with an affectation of silliness. In genuine cases close observation will show that the condition is too constant to be feigned. There is also true incoherence due apparently to weakness of mind and not to mere over-rapidity of association. Attacks of true stupor are common as episodic occurrences.

In all cases which resemble acute mental disease it must be remembered that the general (bodily) state of the patient will afford us valuable information. In insanity taking an acute form sleep is disturbed, digestion is interfered with, general nutrition suffers, and the patient wastes.

It cannot be said that **moral insanity** is an affection that is feigned, but the name is often used as a plea in cases of

crime. Here the life-history of the criminal must be carefully investigated for indications of a congenital absence of the moral sense, or for some cerebral storm (trauma, attack of acute insanity, or the like) from which moral insufficiency appears to date. A case of true moral insanity is a matter rather to be decided by the history than by the results of a medical examination, and there is nothing about which the physician must exercise more caution than in the application of this term. The writer may here say that he has searched sedulously for fifteen years for a case of mere moral insanity, and though he has seen several persons who at some particular times might be described under that category, he has never seen a case which did not at one period of life give distinct indication either of delusion or of marked intellectual weakness.

Feigned general paralysis is necessarily rare, few people of the classes who usually feign insanity having the requisite familiarity with its symptoms. Nevertheless, Spitzka records a case, and a case occurred a few years ago in Ireland, where the simulator, a clever man, who had risen to a good position in one of the public services, and who was familiar with all the artifices of criminals, assumed this affection to save himself from conviction on a charge of an abominable nature. In both instances the imposture was discovered.

Chronic insanity in various forms is feigned from time to time. Detection is easy when we find a person who has been but a week ill sunk in a condition resembling the ultimate stage of mental breakdown with which we are familiar as secondary dementia. This is a mistake which the cleverest impostors may make who are not familiar with the course which insanity runs.

Delusional insanity (paranoia, monomania) is very commonly feigned. The current tales of folk who believe that their legs are made of glass and so forth make ignorant people fancy that the assumption of any nonsensical belief will aid their deception. Feigned delusions, however, are generally easily detected. In spite of the venerable term monomania, delusions do not occur alone. The man who entertains an exalted delusion suffers from insane self-esteem showing itself in various ways, though probably without emotional reaction save episodically. The man who entertains a persecutory delusion is a *persecutee*. In other words, true insane delusions of the paranoic type (that is to say, existing with relative

general intellectual integrity and without emotional disturbance) are always of a highly organised nature. They are grouped and systematised and they grow along definite lines, quite familiar to those who study the insane. The very common combination of exalted delusions of persecutions, reverse and obverse sides of the same mental state, will be unknown to the simulator. So with that peculiar reticence which is so characteristic in the persecuted and which generally denotes that the patient believes his questioner to be a member of the conspiracy against him. When we succeed in obtaining our patient's confidence we find how little isolated his delusions really are. We find traces of his morbid mental state in a hundred little matters connected with the way in which he believes his environment to be related to him. He sees ominous signs of conspiracy in the most ordinary events of every day. Everything tends to refer to him. The mode in which hallucinations come in, in most cases, to confirm and build up delusion and to start further developments is thoroughly characteristic.

While it must not be forgotten that in developed paranoia there is rarely wanting a history of gradual outcome often extending over years, and that highly organised and numerous delusions do not spring up in a day, it is also to be borne in mind, on the other hand, that there are circumstances in which this fact rather complicates than simplifies diagnosis. For example, the eccentric half-crazed fellow who becomes suspicious and disposed to think he is persecuted may, if he be untrammelled, ward off for the time an attack of insanity by change of surroundings, &c., but if he belongs to a military or other service where there is strict discipline he is pretty certain to come into conflict with authority. Such a case, if an investigation is made into his mental state, will be extremely difficult. He will probably not give expression to delusion, or at least he will be so close and reticent that it will require the utmost tact and patience to obtain admissions from him. We shall then be guided by slight indications; we shall lose sight of nothing pointing towards the direction in which delusions usually lie, and in a genuine case our assiduity will rarely be unrewarded.

In cases where simulation is suspected we are generally told that we ought to be on the look-out for a motive. But this is hardly the proper attitude for the physician, and by attributing too much importance to motive or supposed motive

grave injustice may be done. A drunken vagabond with perhaps a bad family history, with probably a bad bringing up, and with an infamous record, will, after he has ruined himself or incurred the risk of severe punishment, appear to have a motive for shamming insane, but we must also remember that he is a person in whom we would have every reason to expect the appearance of insanity. With regard to the exhibition of the first signs of insanity immediately after the commission of some offence, it would be better to put aside the question of motive and simply consider whether the mode of onset of the mental disease is or is not natural.

Having endeavoured to indicate the various matters that should engage our attention according to the various forms in nearer or closer resemblance to which the symptoms stand that we may be investigating, we will now consider more generally the **indications of feigning**, for although it will decide the question of feigning if we are able to definitely find that our patient suffers from such and such a form of insanity, yet we cannot affirm that he is not insane because we cannot say what exact species of mental affection he exhibits.

Simulators nearly always overdo their part. In their frenzied imitation of mania acutissima they break down as above pointed out. In their attempts to imitate melancholia they are apt to introduce symptoms of weak-mindedness. They are afraid to be too reasonable. When closely examined they mistake the drift of our investigations and feign utter amentia. This is a mistake constantly made by the simulator. Hence the great value of testing by questions about figures, coins, and such like common matters. Total absence of any ideas as to the relations of numbers co-exists, of course, with many conditions of idiocy, but it does not occur in acquired insanity unless indeed in cases of such profound brain destruction as permit of no doubt. Even the general paralytic when you can concentrate his attention for a moment will be able to tell what is the sum of three and four, what number of shillings go to a sovereign, and so forth. The unskilled malingerer answers nothing right. He does and says everything the reverse of sane in a manner which we know is not that of the lunatic. But while such extreme conditions are rare even the most cunning are confused by careful examination, and constantly fearing to appear too sane are apt to fall into absurdities quite foreign to insanity.

Close watching will soon reveal the fact if the simulator, weary of his im-

posture or incapable of continuous feigning, throws off the mask at times. For this reason no doubt the feigning of insanity is rare in countries where a criminal can legally be sent to an asylum for a certain length of time to be under observation. A peculiar vigilant watchfulness is nearly always to be seen among simulators. This is a useful indication when occurring together with what appear to be symptoms of acute mental disease, but it must not be forgotten that a similar condition is not rare as a genuine symptom of paranoia persecutoria.

Finally, Dr. Snell of Hildesheim, whose papers on simulation and its detection are probably the most valuable contributions that have been made to this subject, holds that certain forms of melancholia may be feigned by clever persons with such success that detection may not be possible, and he states that if a patient keeps absolutely silent it may be impossible to state whether he is insane or feigning. In the first opinion the writer's experience coincides with that of Snell. He has not seen cases of silence in which a doubt arose, but in such an instance as that of the silent patient of Hildesheim it is difficult to see what perfectly satisfactory criteria could be applied. This individual was found wandering in a village. No trace could be discovered of who he was or where he came from. He lived for some years in the asylum under Dr. Snell's care, and eventually died without having ever spoken. He worked about the asylum wards and did not seem to lack intelligence, though he was somewhat deficient in interest in his surroundings. His hearing was good. This case Dr. Snell no doubt correctly concluded to have been one of overpowering delusion.

We may add that at the annual meeting of the Medico-Psychological Association of Great Britain and Ireland, 1844, Dr. Crosse, of Norwich, read a paper on a case of homicidal mania. The meeting resolved, "That the Association feel inclined to concur in the opinions formed by Dr. Crosse on the case as shortly detailed in his paper, but that they are not aware of any case in which a homicidal monomaniac feigned mania in order to escape the legal consequences of criminal acts."

CONOLLY NORMAN.

FELO-DE-SE (Low Lat. *fello*, or *felo*, a traitor; *de*, upon; *se*, himself). A felon on himself, a traitor to himself, one who destroys his life while still in the possession of his natural faculties.

FEMALES, LIABILITY TO INSANITY IN. (See STATISTICS.)

FEUERLUST (Ger.). Pyromania (*q.v.*).

FEVER, BRAIN; FEVER, CEREBRAL. Terms used as synonyms by various authors of meningitis, cerebrospinal meningitis, phrenitis, acute delirious mania, &c.

FEVER (ENTERIC), EFFECT OF, IN INSANITY.—As a cause of insanity, Enteric Fever might be expected to figure comparatively prominently both on account of the peculiarly depressing influence of this disease on the nervous system, and because, more than the other fevers, it selects its victims from among those of an age (senility apart) most liable to insanity also. Moreover, enteric fever chiefly attacks persons whose vitality is lowered from any cause, and in particular those whose nervous system is suffering from anxiety, overwork, or other stress, acting in addition to and along with which, the influences of the fever may precipitate an otherwise not inevitable, though doubtless threatening, attack of mania, melancholia, or dementia. The protracted prodromal malaise of enteric fever gives opportunity for the symptoms of mental disturbance to become apparent before reliable diagnostic symptoms of the fever itself have appeared. The so-called "ambulatory" form of the fever also presents possibilities of a comparatively disturbed mental state completely masking the physical disorder, especially where there is no rise in temperature. It is not surprising, therefore, to find patients occasionally brought to asylums in a condition of excitement, or, as is more common, of depression, who on careful examination of their bodily condition are found to present symptoms of enteric fever, either on admission or within a period thereafter covered by that of the prodromal malaise. It seems not unlikely that some cases of suicide in private life may be referable to a state of depression accompanying the prodromal stage and also the later stages of unrecognised ambulatory cases.

Less immediately, an attack of enteric fever may be followed by a condition of melancholia or of dementia, which may or may not cross far beyond the borderland. Few persons that have passed through an attack of this fever fail to experience some enfeeblement of the nervous system for a time, sometimes for a very considerable period. Nervous dyspepsia, insomnia, palpitation, menstrual irregularity, irritability, and greater or less impairment of intelligence and of normal emotion and the power of control are frequently observable. Convalescence from this fever is slow, and, as a rule, un-

attended by the usual pleasurable sensations accompanying returning strength. A distinct impairment of speech co-ordination during excitement and fatigue was observed to follow and continue for some months after an attack in two cases of the writer's acquaintance. These, and other clinical facts attest a painful influence on the nervous system, and it is to be noted that the severity of the nervous symptoms does not correspond to that of the general symptoms, being frequently most marked in cases otherwise mild.

On the other hand, some persons seem better in every way after an attack, and their constitution, including the nervous system, renewed and re-invigorated. Such cases have occurred in the experience of all, and it will be seen later that among the insane in asylums they are to be found. It is suggested that in such cases of improvement subsequent to the illness, the fever has been accompanied by free, if not violent, diarrhoea. Other things being equal, a costive state during the presence of the poison in the organism appears to favour its evil effect on the nervous system.

Mental excitement during the period of high temperature is rare in this fever, the word "typhoid" having passed into use as designating delirium of a low inactive type.

Various opportunities have been afforded by the outbreak of epidemics of enteric fever in large asylums, of observing its effects on the insane in the aggregate.

The insane appear perhaps less predisposed to the disorder than their neighbours. At the Durham County Asylum in 1881, 5 attendants and 22 patients were attacked out of 160 patients and 13 attendants who suffered the same exposure to infection. Making due allowance for the fact that many patients were beyond an age liable, their proportion is comparatively small.

The effects on the mental condition of the patients attacked by the fever are more favourable than might have been expected. (See *Journal of Mental Science*, April 1863, July 1882, April 1887.)

Of patients mentally convalescent when attacked, the convalescence was not unfavourably influenced, and several cases have been noted in the records above referred to where mental convalescence first appeared during the attack of fever. Among such were described several cases, mostly of melancholia or mental stupor, in which the mental prognosis had become decidedly unfavourable.

It would be rash to deduce from such facts that enteric fever has any

specifically curative influence on any morbid mental state. Observed improvement may probably be more correctly credited in part to the favourable influence of extra attention, and to the stimulating consciousness of serious illness and of specialised surroundings and treatment. The somewhat vague doctrines of therapeutic substitution and counter-irritation, however, receive some not to be despised support from those records of the effects of enteric fever in the insane, where this disease, notwithstanding its usually unfavourable effect on brain and nerves, would seem to have exerted a favourable influence on the mental state similar to that following other acute disorders of which numerous scattered cases may be found in the records of alienism.

In 1885 and 1886 cases of typhoid fever occurred at Bethlem Hospital. The results, as recorded in the *Journal of Mental Science* (April 1887), by Dr. Percy Smith, are as follows:—In two cases (1 and 3) a definite, sudden abatement of maniacal symptoms appeared concurrently with the onset of the fever, and the mania did not recur. In case 1 the attack was followed by a certain amount of temporary depression, but this was in all probability due to the patient's unstable nervous system, and was not quite the same as the alteration of mental condition sometimes seen in the sane after an attack of typhoid. In case 3 it is interesting to note that the patient had previously had an almost maniacal delirium during an attack of scarlet fever. In one other case (No. 6) the patient had entered upon mental convalescence before the discovery of any febrile process, but the mental improvement progressed concurrently with the latter, and was certainly not delayed by it. In the remaining three cases there was no permanent benefit. In case 2, however, the maniacal excitement, which would have been a source of real danger to the patient, happily abated during the fever, thus rendering her treatment comparatively easy; and in this case it was interesting to notice the quieter delirium of typhoid fever replacing the intense excitement she laboured under before. In case 4, there was merely a temporary remission of the depression the patient suffered from, and there was no delirium during the fever. Case 5 was the most anxious one, in consequence of the extreme restlessness and obstinate resistance of the patient during the whole of the time, and, as remarked before, there was no mental improvement whatever. Why this occurred in this case only is not very apparent. At present typhoid fever is

too dangerous a disease to the patient to suggest that it should be administered medicinally. Perhaps at some future date, when the specific fevers have been rendered manageable, acute attacks of insanity may be cured by inoculation. All that can be said at present is that in some cases of insanity an attack of typhoid fever appears to cut short the mental disease.

As a preventive of enteric fever in lunatic asylums, especially where the drainage system is extensive, old, or complicated by numerous structural additions, a frequent and periodical examination and testing of the whole system by the latest and completest methods seems an imperative duty.

Isolated cases of enteric fever appear not necessarily referable to drainage defects, as sporadic, apparently spontaneous cases, undoubtedly occur.

COLIN M. CAMPBELL.

FEVER, EPILEPTIC. (*See* FEBBRIS EPILEPTICA.)

FEVER, EROTIC (ἐρωτικός, caused by love). The fever which is said to accompany erotomania. (*Fr. fièvre d'amour.*)

FEVER, MENTAL HECTIC (ἐκτικός, habitual or constitutional, from ἔξις, habit). A slow fever resulting from depressing conditions of the mind, as from loss of relatives, from longings or regrets.

FEVER, NERVOUS HECTIC (ἔξις). A term applied to the constitutional disturbance observed in those who are labouring under mental affections.

FIDGETS.—The colloquial name of the disease or morbid symptom called dysphoria. It consists of an overpowering sense of restlessness, nervous irritability, with peculiar sensations of fulness in the extremities, thirst, dryness of skin, wakefulness, and is due either to mental or physical fatigue, dyspepsia, or some other functional disease (Cheyne).

FILTH-DREAD. (*See* MYSOPHOBIA.)

FINGERS, INSANE.—A name given to the low, inflammatory, sluggish form of whitlow sometimes observed in general paralytics and others.

FIT (A.S. *fit*, a struggle). A sudden attack or paroxysm of a disease, especially applied to an attack of epilepsy, paralysis, or apoplexy.

FIT, EPILEPTIC. (*See* EPILEPSY.)

FIT, HYSTERICAL. (*See* HYSTERIA.)

FITZ-JAMES, COLONY OF.—This noted institution, not far from Clermont, deserves a short, separate notice in this place. The locality lies about six-and-thirty miles from Paris, in the department of Oise. There is a central

asylum, standing in fifty acres of ground, which provides for males and females.

The colony is thus described by an intelligent visitor, Mr. Letchworth: "Industry, order, and freedom are noticeable throughout the whole establishment. There are no enclosing walls. The two-story buildings of the administrative section surrounded by gardens, parks, and meadows are plain, and are planned so as to afford sleeping apartments above and day-rooms below. Prominent among these buildings is one allotted to boarders, in which there is a billiard room and a library. A short walk from the main building brings one to an establishment called the "Little Château." Here, under conditions of much freedom, a number of lady boarders are provided for in accordance with the requirements of their individual preferences and temperaments. In another direction from the administrative section, and forming a somewhat remarkable colony by itself is the large laundry (*la section de Bécrel*), where the patients engaged in laundry work reside. The colonies of Fitz-James and Villers have upwards of a thousand acres of farming land; the majority of the male pauper patients are employed at general farm work. They are divided into groups of ten or fifteen, and are directed and assisted by an attendant. Among so large a number there may be found those adapted to every requirement of farm industry. By carefully studying the tastes, dispositions and ability of each patient, selection is made of those to whom can be assigned a specific charge, such as the care of certain tools. In this way the land is thoroughly cultivated, the farm implements kept in repair, and the domestic animals properly cared for. Vegetables in great variety are produced in quantities sufficient to meet the wants of the institution. In connection with the farm buildings of Fitz-James there is accommodation for a small colony of farm labourers, for whom have been fitted up day-rooms on the ground floor and associated dormitories above. As one enters the court around which are arranged the stables, sheep-folds, cow-sheds, and piggeries, he is struck with the neatness and order with which they are kept. Among the attendants are several practical farmers, who work with and direct the insane. About the barns was seen a large group of patients cheerfully preparing for work after their mid-day meal. But agriculture is not the only industry of Fitz-James; while many of the patients are occupied on the land, there are a considerable number chosen on account of

previous experience, to work at various trades. Although the colony of Villers is a considerable distance from that of Fitz-James, the lands adjoin. The open-door system is here fully realised, the operations of the place being conducted with nearly the same liberty as in ordinary family life.

"The examination of the Clermont colonies afforded me much satisfaction. There was apparent cheerfulness in the several divisions, while, as has already been shown, the steadiness with which the industries are pursued, tells favourably in the economic results attained. Nevertheless, the primary object of labour is the welfare of the patients. The force of example, the fear of being returned to the more restricted limits of the central asylum, and the offer of rewards in the shape of money or of dainty food are inducements to labour, but recourse to coercion is forbidden. On an average the time allotted for work does not extend beyond six hours per day. The free and natural conditions of life existing at Fitz-James and Villers are marked characteristics of these colonies, nor can one forbear to note the admirable judgment and delicate tact displayed in adjusting the employment to the experience, physical capacity, and mental condition of the patients." ("The Insane in Foreign Countries," by William P. Letchworth, 1889, p. 238.)

THE EDITOR.

FIXATIO MONONEA (*figo*, I fix *μόνος*, alone; *νοῦς*, the mind). A synonym of Melancholia.

FLAGELLATION-MANIA (*flagellum*, a small whip; *μανία*, madness). A synonym of Malleation (*q.v.*).

FLEXIBILITAS CEREÆ (*flecto*, I bend; *cereus*, waxen). The peculiar semi-rigidity of the muscles in catalepsy, which allows the limb to be moved into any position and which enables it to remain fixed there. (See *CATALEPSY*.)

FOLIE (Fr.) (*fou*, mad, from Low Latin *foliis*, foolish). The French term for madness or insanity. The French distinguish between *aliénation mentale* and *folie*, although in common language the terms are synonymous. The former is a generic term which comprises without distinction all the mental changes which may arise, whether organic or functional, congenital, or acquired. The latter is simply one of the constituent parts of mental alienation, and is applied to the loss of reason, properly so called, occurring in an individual previously reasonable. An imbecile is an *aliéné*, because he presents an evident change in the intellect, but every imbecile is not a *fou*. But an *aliéné* may have an

attack of mania or melancholy, and he would then become *fou* (Régis). (Ger. *Irrsein; Irresein; Verrücktheit, Wahnsinn.*)

FOLIE À DEUX (Fr.). (See COMMUNICATED INSANITY.)

FOLIE À DOUBLE FORME (Bailarger) (Fr.). (See CIRCULAR INSANITY.)

FOLIE A FORMES ALTERNES (Fr.). (See CIRCULAR INSANITY.)

FOLIE, ALCOÛLIQUE (Fr.). The insanity other than delirium tremens, which follows on continued alcoholic excess, in consequence of hereditary or acquired mental tendencies. (See ALCOHOLISM.)

FOLIE AMBITIEUSE (Fr.). That form of insanity in which personal exaltation is a marked feature, as in general paralysis and some forms of monomania.

FOLIE AVEC STUPEUR (Fr.). (See DEMENTIA, PRIMARY; MENTAL STUPOR.)

FOLIE CHORÉIQUE (Fr.). A form of the sensorial insanity of children and young people, in which the motor reactions are spasmodic and partake of the character of chorea. They are accompanied by sensorial hallucinations, chiefly affecting the vision, and occur at the time between sleeping and waking. Also applied to the combination of chorea and mental disorder in adults. (See CHOREA AND INSANITY.)

FOLIE CIRCULAIRE (Fr.). Falret's term for a form of insanity in which there are, in regular succession, two opposite mental conditions, one characterised by greater or less exaltation, the other by depression, each state being generally separated from the other by a longer or shorter period of a normal mental condition, which in time becomes more or less impaired. The period of the entire cycle varies. (See CIRCULAR INSANITY.)

FOLIE COMMUNIQUÉE (Fr.). The form of insanity in which the mental affection is transmitted from one person to others. (See COMMUNICATED INSANITY.)

FOLIE CONGESTIVE (Fr.). Insanity supposed to be due to congestion of the cerebral structures.

FOLIE D'ACTION (Fr.) Brierre de Boismont's term for moral and emotional insanity (*q.v.*).

FOLIE DÉMONOMANIAQUE (Fr.). (See DEMONOMANIA.)

FOLIE DEPRESSIVE (Fr.). (See MELANCHOLIA.)

FOLIE DES ACTES (Fr.). That form of insanity in which there are impulses and tendencies to immoral and wrong acts, but no delusions. (See MORAL INSANITY.)

FOLIE DES FEMMES EN COUCHES (Fr.). (See PUERPERAL INSANITY.)

FOLIE DES GRANDEURS (Fr.). The form of insanity usually present in general paralysis, in which the ideas are of greatness, vast riches, high rank, &c. (See EXALTATION and GENERAL PARALYSIS.)

FOLIE DES IVROGNES (Fr.). (See ALCOHOLISM.)

FOLIE DES PERSÉCUTIONS (Fr.). The form of insanity in which the insane person believes himself to be the subject of persecution. (See PERSECUTION.)

FOLIE DIATHÉSIQUE (Fr.). An insanity which accompanies some morbid diathesis.

FOLIE DU DOUTE (Fr.). That form of insanity in which childish scruples and fears grow into uncontrollable doubt in relation to ordinary duties, religious observances, and all that makes the man, there is great depression, and often a suicidal tendency. (See DOUBT, INSANITY OF.)

FOLIE ÉPIDÉMIQUE (Fr.). A name given to those attacks of insanity which have occurred in convents and in other places, where an impression of demoniacal or other possession having been received by one person, usually a female, has been rapidly taken up by others. (See EPIDEMIC INSANITY.)

FOLIE ÉPILEPTIQUE (Fr.). The degradation of the mental faculties, amounting sometimes to dementia, which frequently occurs in a person subject to epileptic fits. Also the acute mania which may occur immediately before or immediately after an epileptic fit, or the attack which takes the place of the epileptic fit (masked epilepsy). Also Falret's term for paroxysmal insanity.

FOLIE GYNÉCOLOGIQUE (Fr.). The insane longing after vaginal examination, sometimes due to a morbid sexual erethism, sometimes a purely mental disorder.

FOLIE HÉRÉDITAIRE (Fr.). Insanity produced by hereditary weakness of the nervous system. (See INSANITY, HEREDITARY.)

FOLIE HYPOCHONDRIQUE (Fr.). (See INSANITY, HYPOCHONDRIACAL.)

FOLIE HYSTÉRIQUE (Fr.). (See INSANITY, HYSTERICAL.)

FOLIE IMITATIVE (Fr.). The form of communicated insanity in which the madness has been copied from an insane companion.

FOLIE IMPOSÉE (Fr.). A variety of communicated insanity in which the lunatic imposes his insane conceptions on another intellectually and morally weaker than himself. (See FOLIE À DEUX.)

FOLIE IMPULSIVE (Fr.). (See INSANITY, IMPULSIVE; INSANITY, INSTINCTIVE.)

FOLIE INSTANTANÉE (Fr.). A term employed by Castelnau for what is known as mania transitoria (*q.v.*).

FOLIE INSTINCTIVE (Fr.). The form of insanity in which there is a propensity to commit wrong acts, such as suicide, homicide, theft, and incendiarism. (See INSANITY, INSTINCTIVE.)

FOLIE ISCHÉMIQUE (Fr.). Insanity accompanied or caused by cerebral anæmia.

FOLIE LUCIDE (Fr.). (See MORAL INSANITY.)

FOLIE PAR INTOXICATION (Fr.). Morel's term for the insanities produced by the ingestion of inebriating or poisonous substances. He divides them into three classes: (*a*) those mental disturbances produced by narcotising substances—*e.g.*, alcohol, Indian hemp, &c., as well as those produced by agents such as lead and mercury; (*b*) those produced by insufficient or unhealthy food; (*c*) those produced by telluric influences—*e.g.*, the insanities of malaria and cretinism.

FOLIE PARALYTIQUE (Fr.). A term used as a synonym of General Paralysis of the Insane. Also the insanity which sometimes follows an attack of paralysis. (See INSANITY, POST-APOPLECTIC.)

FOLIE PELLAGREUSE (Fr.). A form of insanity, generally suicidal melancholia, occurring in those suffering from pellagra (*q.v.*).

FOLIE PÉNITENTIARE (Fr.). Insanity developing in the inmates of penitentiaries, prisons, &c., due to the influence of the incarceration, deficiency of food, mental dejection, &c. It takes the form either of acute mania or melancholia.

FOLIE PUERPÉRALE (Fr.). (See INSANITY OF LACTATION; INSANITY OF PREGNANCY; INSANITY, PUERPERAL, &c.)

FOLIE RAISONNANTE (Fr.). A term synonymous with Moral Insanity (*q.v.*).

FOLIE RAISONNANTE MÉLANCOLIQUE (Fr.). Griesinger's term for hypochondriacal melancholia.

FOLIE RHUMATISMALE (Fr.). (See INSANITY, RHEUMATIC.)

FOLIE SENSORIELLE (Fr.). The form of insanity in which illusions or hallucinations are predominant symptoms.

FOLIE SIMULÉE (Fr.). (See FEIGNED INSANITY.)

FOLIE SIMULTANÉE (Fr.). A variety of communicated insanity in which two or more persons, hereditarily predisposed, contract the same form of insanity

at the same time. (See COMMUNICATED INSANITY.)

FOLIE SYMPATHIQUE (Fr.). The form of insanity in which the mental disturbance follows, or appears to follow, disease or disorder of some other organ than the brain, or is caused by the presence of a foreign body. (See SYMPATHETIC INSANITY.)

FOLIE SYMPTOMATIQUE (Fr.). Insanity depending on disease of some other organ than the brain only.

FOLIE SYSTEMATISÉE (Fr.). (See DELUSIONAL INSANITY.)

FOLIES UTÉRINES (Fr.). Uterine insanities. Also the different forms of insanity dependent on disorders of the utero-ovarian organs. Also a term for Nymphomania.

FOLIE VANITEUSE (Fr.). (See AMENOMANIA, MEGALOMANIA.)

FOMES VENTRICULI (*fomes*, chips for firewood, from *foveo*, I warm; *ventriculus*, the stomach). A synonym of Hypochondriasis.

FORMICATION (*formica*, an ant). The pricking or tingling sensations on the surface of the body as if ants were creeping on it, met with usually in organic diseases of the spinal cord, and sometimes, but rarely, in hysteria.

FORMS. (See LUNACY LAW.)

FRANCE, PROVISION FOR THE INSANE IN. Historical Sketch.—About a century ago the reform in the treatment of the insane was commenced in France, and since that time great progress has been made. More progress has, however, still to be made, and many more improvements are desirable, but nothing in this world is perfect, and even if the treatment of the insane in France never should become better than it is at present, one would nevertheless admire the excellent results obtained.

The progress of the reform has gone through successive stages, in every one of which one is able to recognise the special influence of eminent men, each of whom in his turn has contributed to it in different ways, as circumstances required.

We shall examine this progress in its successive stages from the standpoint of the treatment of the insane and from the standpoint of legislation.

Philippe Pinel, whose name is universally known and honoured, took the initiative.

It is well known that in the preceding centuries insanity was considered a dreadful plague. The unfortunate insane, victims of the most barbarous prejudices, instead of being treated as men, were

considered as, in the main, harmful and malicious creatures. They were imprisoned and confounded with criminals of all sorts; in short, they were treated most inhumanly. Nearly everywhere they were chained with irons, and, heavily fettered, were kept in dark, narrow, and unhealthy prisons. There they dragged along a miserable existence, given up to the brutality of the gaolers, who had not the slightest pity for them; there they were also exposed to the mockeries and insults of a curious and indifferent crowd, for whom the sight of their misery became an object of amusement and of recreation.

In the seventeenth and eighteenth centuries several men had at intervals drawn attention to this deplorable state of things. But their voices found no echo, and their efforts remained unsuccessful.

Pinel was more fortunate. He was undoubtedly favoured by circumstances, but he also possessed, what nobody did before him, a knowledge of insanity. He was thoroughly convinced of the truth of the fact that the insane do not belong to a different species, but that they are men, patients, and that they have to be treated accordingly. He knew that the true means of ameliorating their fate was to alleviate their physical and moral suffering—*i.e.*, on the one hand to give them medical treatment, and on the other to use gentleness, kindness, and justice. He resolved, therefore, to obtain, first, the suppression of the means of restraint employed and of the barbarous treatment to which they were subjected. It was at the close of 1792*—at a moment when France, crushed under the Reign of Terror, was left to the mercy of a few men who were more eager to destroy their own species than to aid the diseased, infirm, and insane. Pinel, who had some time before that been appointed physician of Bicêtre, undertook to go to these men asking for authorisation to suppress the use of irons, by which the patients were confined at the hospitals. His demand was bold, for he ran the risk of attracting the distrust and suspicion of men always disposed to find everywhere plots against themselves.

"Citizen," said one of those to him to whom he applied, "I shall go to-morrow to Bicêtre to inspect it; but woe to thee if thou hidest the enemies of the people among thy lunatics."

The man who said so kept his promise and arrived the next morning at Bicêtre.

* Pinel's son finds that this, the usually received date, is incorrect, and that it was in reality 1793.

He himself wanted to examine the insane one after the other. He was brought to their quarter, but he heard there in the midst of confused screams and cries only the noise of chains re-echoing in cells full of filth and dampness.

Soon tired by the monotony of this spectacle and by the uselessness of his search he turns towards Pinel. "Look here, citizen," says he, "art thou insane thyself that thou wilt unchain such animals?" "Citizen," replies Pinel, "I am convinced that these lunatics are so unmanageable only because they are robbed of air and liberty, and I dare to hope much from the opposite means of treatment." "Well, do with them what thou likest; I give them over to thee, but I am afraid thou wilt be the victim of thy presumption."

Being now free to act, Pinel commenced his enterprise the same day. He took all precautionary measures required by the circumstances, and in less than a week he freed more than fifty lunatics from their manacles. Some were very dangerous, and among them patients who had been in chains for ten, twenty, and thirty years.

The alarm his undertaking caused, created around him, even at Bicêtre, strong opposition. But, strengthened by the liberty of action granted him and supported by a man whose name deserves to be mentioned by the side of Pinel, Pussin, who was an attendant in the hospital, he continued his work with firmness, and had the pleasure of seeing it crowned with success. The excitement produced by the bad treatment gradually disappeared, and comparative quietness and tractability took the place of tumult and disorder.

Pinel remained for two years at Bicêtre, and utilised the time in abolishing the chains and dungeons. Everywhere he gave light and air, constructed promenades, and built workshops; he also introduced good diet. He originated the whole progress which has since developed, and had the satisfaction of seeing some cases recover, previously regarded as incurable.

From Bicêtre he went to Salpêtrière, where he found the same abuses and atrocities, and where he undertook the same reforms. There also he met with great opposition, but his firmness vanquished it, and the insane women also were enabled to enjoy the same privileges as the men.

The reform brought about by Pinel was received by the civilised world with true enthusiasm, but nevertheless it had not the great results one would have expected,

It was for many years confined to Bicêtre and the Salpêtrière, whilst in all other places, either from habit, ill-will, or insufficient resources, the deplorable system of the past remained in force. We must also take into account the unfortunate circumstances of that period. The leaders of the Revolution were, on account of the events which overwhelmed them on all sides, no longer able to give attention to a question of limited interest like that of the treatment of the insane.

Twenty-five years after Pinel had knocked off the chains of the lunatics at Bicêtre, the progress of his ideas had not advanced one step. Then Esquirol, his pupil and emulator, intervened, whose reputation is scarcely second to Pinel's, and whose name marks the second phase of the reform of the treatment of the insane in France.

Esquirol having been ordered to make an inquiry into the condition of the insane and their establishments, wrote these grievous words: "These unfortunate people are treated worse than criminals, and are reduced to a condition worse than that of animals. I have seen them naked, covered with rags, and having only straw to protect themselves against the cold moisture and the hard stones they lie upon; deprived of air, of water to quench their thirst, and of all the necessaries of life; given up to mere gaolers, and left to their brutal surveillance. I have seen them in their narrow and filthy cells, without light and air, fastened with chains in these dens, in which one would not keep wild beasts. . . . This I have seen in France, and the insane are everywhere in Europe treated in the same way."

After having eloquently protested against such a state of things, Esquirol applied himself eagerly to propagating the same principles as had inspired Pinel. He was supported in his efforts by his pupils, Foville, Delaye, Rostan, and others, who through his recommendation were placed at the head of the principal asylums then in existence.

At that time there were in France only eight public establishments specially for the insane. Everywhere else they were mixed with the other patients in the hospitals, or were even kept in workhouses and prisons. Esquirol pressed the Government to have new asylums built, because there only the insane could be properly cared for. According to him about ten would suffice to supply accommodation for eight thousand lunatics.

Yielding to his solicitations the Minister of the Interior addressed, in 1819, a circular to the prefects, indicating to them the

most urgent improvements required. The following were insisted upon:

Instead of dispersing the insane over the hospitals, prisons, and workhouses, care should be taken to unite them in one and the same establishment, where proper treatment could be carried out.

Too small or unhealthy cells should be abolished, and walks and gardens should be arranged for.

The patients should no longer lie down on the floor, but beds should be provided, or the straw should often be renewed.

The supply of food should be regulated according to the *régime* of the hospitals, and the prescriptions of the medical men.

The attendants should no longer be armed with sticks or accompanied by dogs.

A physician should be attached to every establishment, in which there is not one already.

Lastly, the use of chains should be abandoned, as in Paris.

These instructions, if carried out, would have brought about considerable improvements. But unfortunately the Minister could do nothing more than give advice. He had no direct influence on the administration of the towns and of the *départements*, and so the accomplishment of these reforms rested with the good-will and the financial resources of the different authorities. Some *départements* conformed to the instructions sent to them, and from 1820 to 1834 we see about ten establishments newly built or considerably improved. But everywhere else the condition of the insane remained as deplorable as before.

After Esquirol, Ferrus took the lead in this reform-movement, and he was the first who received the title *Inspecteur-général du service des aliénés*, a title which gave him special authority, and allowed him to take a more efficient initiative. The period with which his name is connected is the time of a thorough transformation of the *régime* of the insane in France.

He was the first in France who thought of giving the patients regular work to do, which would be helpful in the treatment and at the same time profitable to the establishments. In order to realise this idea, he established in 1832 the farm of Sainte-Anne in connection with the asylum of Bicêtre. The cultivation of this farm was given entirely into the hands of the insane of that asylum. At first only convalescents were employed, but afterwards lunatics at the height of their disorder and belonging to various professions were employed to build dwellings or

to transform the ruins of an old building into a habitable house. Since then, the farm of *Sainte-Anne* has in its turn become an asylum. The idea, however, from which this establishment originated, has borne its fruits, and has been one of the most important measures of reform. It is, indeed, a matter of extreme importance, that the patients should not be left alone; they must be occupied as much as possible, because they have in their work not only distraction of mind, but also an excellent means of treatment.

Still greater praise, however, is due to Ferrus, because he saw that a law was necessary in order to advance and generalise the reform in the treatment of the insane. He urged the public authorities in this direction, and to these efforts we owe the admirable law of June 30, 1838, which in its essential points was inspired by him, and which exercised an enormous influence on the ultimate progress of the reform. From this moment, indeed, dates the definite organisation of the treatment of the insane in France, and by virtue of this law the Government was in a position to defeat the opposition which the local administrations offered to this amelioration of the condition of the insane, and to compel them to create as many new special establishments as were necessary, and to improve those already in existence.

We shall, further on, give a *résumé* of all the regulations of the law of 1838. We will here notice only that, according to its first article, "every *département* is to have a public establishment, specially destined to receive and to take care of the insane, or to make a contract to this effect with a public or private establishment of this or of another *département*," and that, according to the second article, "the public establishments for the insane are placed under the direction of the public authority."

An Act, passed December 18, 1839, organised the administration of the asylums, regulated the medical service, and thus made the regulations of the law complete.

The first effect of the law of June 30, 1838, was the transfer of the insane dispersed over the small hospitals, work-houses, and prisons, to asylums specially constructed for this purpose. At the same time the asylums were improved and enlarged, and new ones were built; their administration was regulated and the managers were given precise powers and responsibilities.

All this was done under the direction and supervision of Ferrus, who incessantly stimulated the zeal and activity of the

central authorities as well as the local administrations. He remained till 1859 at the head of the service of general inspection. From 1848 he was assisted by Parchappe, who equally influenced the accomplishment of the reform. The work of these two first inspectors was worthily continued by their successors, among whom we find Constans, Lunier, Duménil, and Ach. Foville, who by the important service they rendered deserve the gratitude and esteem of all interested in the fate of the insane.

To appreciate the importance of the movement during the period in which Ferrus was Inspector-General, it will suffice to state the number of special establishments at the end of that period.

We have seen that in 1818 there were in France eight asylums only; in 1838 there were fourteen, and in addition twelve establishments where lunatics were living together with other patients. In 1860 there were forty departmental asylums, twelve private asylums having the functions of public asylums, and sixteen hospitals which had been organised in the fashion of asylums. A certain number of these establishments were doubtless more or less imperfect, but among the entirely new asylums some may be considered as models of excellence.

It does not lie within the scope of this article to follow minutely the modifications introduced into the treatment of the insane in France. To show the progress accomplished it suffices to refer to the present state of things, and by comparing this with the periods mentioned above the importance of this progress will easily be appreciated.

Asylums in France.—There exist in France 107 special establishments for the insane: 47 public asylums belonging to the State or to the *départements*; 18 private asylums, with the functions of public ones; they belong to private owners, and receive the poor of the *départements* with which they have contracted; 17 hospitals, partly organised in the fashion of asylums; and, lastly, 25 *maisons de santé*, which belong to private owners, and receive the patients of the wealthy classes.

In 1834 the number of the insane in the different establishments was about 10,000. At present the population of the special asylums is about 45,000, of whom 1500 are placed in the *maisons de santé*.

In most of the asylums for the poor, the population is between 400 and 600 patients. About a dozen of the asylums receive more than 600 patients, and in two of the latter, Maréville and Clermont, there are about 1500 in each.

Each asylum comprises a certain number of classes, in which the patients are distributed according to their means. In a general way there are separate quarters for children, old people, convalescent, dirty, excited, and epileptic patients. Lastly, there is an infirmary for accidental illness.

In each quarter there is a hall, a dining-room, a court with covered galleries, a dormitory, and seclusion rooms, if necessary.

The division in classes constitutes the essential character of the asylums, and distinguishes them from the workhouses or ordinary hospitals; and where this classification does not exist, or is insufficient, an efficient treatment of mental disease is not possible.

The necessity of having classification has been recognised from the beginning. Esquirol laid down rules for it, and all the asylums of France have conformed to them.

There is, however, a difference in the manner of placing these quarters. In one place the system of isolated pavilions has been adopted, built parallel to each other, and at right angles to the axis of the establishment; at another place, the quarters isolated, radiate around a principal centre, generally formed by a special pavilion, the seat of administration. Again, at other places, the buildings are continuous. Each system has its advantages and inconveniences. Moreover, the authorities have not given preference to any one of them.

Whichever be the mode of distribution of the buildings, the principal purpose everywhere is, that the patients should have a comfortable home and whatever is suitable to their condition, and that the rules of hygiene should be observed. The endeavour has been to avoid encumbrance, especially in the dormitories, for which special regulations demand 30 to 35 cubic metres for each patient in the infirmaries, 25 to 30 cubic metres for dirty patients, and 20 to 25 cubic metres for all others. For the single rooms 30 to 40 cubic metres are generally required. As much as possible the halls are ornamented and the walks adorned with flower-beds. Everything is avoided which might tend to give the asylum the aspect of a place of confinement.

A certain number of the asylums of France are situated in the middle of large towns; but the greater part, and especially those recently constructed, are placed in preference in the country, in the midst of more or less extensive farms, the cultivation of which by the patients constitutes

one of the resources of the asylum, and at the same time a means of treatment, of occupation, or of distraction for the patients.

Warm discussions have been raised on the subject of the constitution of these farms. Two views have been expressed; according to one, the farm should be near the asylums; according to the other, it would be preferable to have it separate, as a sort of independent asylum.

This latter system is said to have the following advantages:

It would allow of more perfect agricultural cultivation.

It would not, like the asylum properly speaking, awaken ideas of confinement, and would more easily allow illusions about the character of the establishment.

It would make the patient forget the nature of his disease, in placing him under the ordinary conditions of life in the country.

It would constitute for the convalescent a stage of transition between the asylum and society, and the patient would to a certain extent become accustomed to liberty.

Those who maintain that it is better to have the farm attached to, and form an integral part of, the asylum say, on the other hand:

It becomes impossible to constantly occupy the two sexes of the agricultural asylum, without bringing frequently together patients and attendants of different sexes.

Open-air work becomes impossible for excitable and infirm patients, who cannot be brought away from the asylum, and thus one is deprived of a most important means of treatment; for, as Dr. Foville remarks, work plays in the asylum an important part, as a useful employment of time, as directing the actions into a particular channel, as a diversion of muscular activity and delusions, and as a means of keeping good order.

These latter considerations have prevailed almost everywhere in France, and, with one or two exceptions, the farms are attached to the asylums.

From the moment it was recognised that work is useful and profitable for the insane, it was not sufficient to organise it in one way. It had to be considered that, especially in the working centres, most of the patients of an asylum are either unfit for, or object to, agricultural work, and are more interested in other employments. The endeavour has, therefore, been to occupy each one according to his abilities. For the men workshops have been established; masons, painters, &c., are em-

ployed in their profession. In some asylums the patients work as weavers; almost everywhere they are employed as bakers, as helps in the kitchen, and in the infirmaries for different services. Those who have no special abilities are employed for making ditches and digging. Women are employed for millinery, or the repair of linen and clothing, or they wash and iron and do all the work suitable to their sex.

At the same time the endeavour is everywhere to make the residence in the asylum as agreeable as possible. In most establishments the quiet patients are allowed to go during fine weather long walks outside the asylum. These walks are an excellent hygienic exercise, and at the same time afford a distraction often much desired; they are not always possible for asylums situated in the towns, although in reality the public is not so much frightened as formerly to see lunatics pass through the public thoroughfares.

Some asylums from time to time give theatricals, concerts, performances in prestidigitation, and dances. We must confess, however, that although distractions of this kind are useful, they nevertheless have charm and interest for a small number of patients only. The others are of too weak intellect or too much occupied with themselves to take an interest in them.

The same observation holds good with regard to libraries and recreation rooms, also to courses of instruction, music, and drawing-lessons, which have been started in some places. These trials have generally given only moderate results.

Of much greater importance is the practice of religious services, which almost everywhere have been regularly organised. Experience has, indeed, shown that religious services, especially when accompanied by music and singing, are liked by a great number of patients, and exercise a salutary influence over many of them.

In France the question has been raised whether it would be well to separate the curable patients from the incurable by either establishing for them separate asylums or by keeping them distinctly separate in one and the same asylum. But the prevalent opinion is that this separation is impracticable, and experience has shown that it is not only actually impossible but also injurious, because certain patients registered as incurable and classed as such, may recover, and would be unfavourably impressed on seeing that they had been completely given up.

The treatment of patients at home has until now been looked upon as utopian

by the French alienists. Several trials have been made on the same principle as boarding out children. In the Vosges and in the *département du Rhône* it was proposed to some country-people to become foster-fathers. But when they saw what insane people were like, most of them were in a hurry to get rid of those entrusted to their care. The tendency in France is not at all in favour of this mode, which in other countries seems to give fair results.

The greatest progress made consists in the establishment of a society for the protection of poor patients who leave the asylums cured. It often happens that these poor people, if left to themselves, do not find any help or protection. They have no resources, and do not know what to do. People suspect them, and are afraid to entrust tools or other instruments to them, so that the privations and the grief they experience are often a cause of relapse.

The idea of protective societies is due to Cazauvieilh. In 1843 the first society was founded in Paris and organised by Baillarger. The object of the society was "de veiller sur les aliénés à leur sortie de l'asile, de soutenir leur faiblesse; de les aider à renouer les liens de famille, et à reprendre les relations rompues; de leur procurer du travail; de leur rouvrir enfin la porte des ateliers." About the same time J. Falret founded a house of convalescence for women, the purpose of which was the same as that of the protective society, the aim being to keep them from relapsing by giving them at once an abode. These works have answered well since their foundation. The Government supports them, and they have rendered splendid service. Unfortunately their field of action is very limited, and it is of importance to extend their influence over all the insane of France.

In finishing the paragraph concerning the assistance of the insane in France we have to mention an important factor in this progress and in that of the science of mental disease: the *Société médico-psychologique*, founded December 18, 1843. This learned society, which has acquired a high reputation, has devoted much study and numerous discussions to the questions of treatment and assistance of the insane. Its deliberations and its initiative have lent their authority to everything calculated to ameliorate the fate of these unfortunate creatures.

Lunacy Law.—We have now to treat of what has been done in France in legislation concerning the insane. The legislative reforms at first followed, and then

preceded the progress and reform of treatment.

At the time when Pinel began his reforms there was not one law in France which allowed of generalising and securing the benefits of this reform. The insane were considered and treated as malefactors.

It is true in 1790 the *Assemblée Nationale* promulgated a law remarkable because for the first time a lunatic was compared to a patient. The law ordered that every person retained on account of madness should be visited by a medical man and should then be admitted to an hospital specially for this purpose. Unfortunately this law was very incomplete and remained a dead letter.

In 1819, in consequence of the *enquête* made by Esquirol, the Government issued a decree, the dispositions of which, as we have seen, were good, but which was not applied, and therefore did not produce any good results.

In 1833 a new *enquête* revealed a deplorable state of things. It was stated that out of about ten thousand lunatics nearly one-third were completely abandoned and were in a state of vagrancy or in prison, for want of a sufficient number of special establishments. At that time Ferrus, made *inspecteur-général*, exercised his influence for good. He showed that a law was necessary in order to enable him to solve the questions of treatment and of protection of the insane. The Government entered upon his views, and in 1837 laid the proposal of a law before the Chamber, which after eighteen months' debate was passed on June 30, 1838.

This law marks a great era in the history of the insane in France. Conceived in the most humanitarian spirit, and prepared with exceptional care by the most advanced minds, it has been rightly admired and has been treated as a model by several foreign countries. Indeed, it solves in an almost perfect manner the difficult problem of organising the treatment of insanity on a sound basis, and at the same time protecting society and the insane themselves against the inconveniences and dangers of insanity, and, lastly, of thoroughly guaranteeing the rights of individual liberty.

Its first object was, as we have seen, to decree the erection of a sufficient number of asylums, and it placed the public asylums under the direction, and the private asylums under the supervision, of the public authorities,

The mode of admission for patients into either public or private asylums is protected by two conditions, which differ

according as they are voluntarily made by the family of the patient or ordered by the appointed authorities.

For voluntary admissions three papers have to be produced: (1) request for admission; (2) a medical certificate stating the mental condition of the patient, particulars concerning his disease, and that it is necessary to have him treated and retained in an asylum (this certificate may be signed by one medical man, but it must have been dated within a fortnight of admission); and (3) a certificate of identification. Persons may be admitted by the appointed authorities without the production of these papers. The order comes directly from the prefects in respect to any one whose mental condition endangers public order or the safety of others.

We see that these conditions place no serious obstacle in the way of admitting urgent cases at once into an asylum, and therefore it was necessary to take appropriate measures for preventing arbitrary sequestrations. The law of June 1838 has provided conditions which ought to satisfy the most particular.

The law decrees that if the patient is admitted into a private asylum the prefect must send one or more medical men in the course of the three following days to ascertain whether the patient is really insane.

In all cases of voluntary admission, besides the directors advising the prefect within twenty-four hours, the physician of the establishment has at the time of the patient's admission and at the end of the first fortnight to send certificates to the administrative authority stating the condition of the patient.

As soon as the patient has recovered he must be set at liberty. Even before recovery the parents or guardian have the right to take the patient out again. Any person may, by applying to the *tribunal* of the place where the asylum is situated, obtain the special examination of a patient retained in the asylum, after which the *tribunal*, if necessary, orders that the patient shall be discharged.

The patients may freely write and send requests or demands to the administrative or judicial authorities. The directors of the asylum are liable to heavy penalties if they suppress or retain the requests of their patients.

Lastly, the *inspecteurs généraux*, the prefects, and certain magistrates have free access into all asylums to satisfy themselves in person that the laws and regulations are observed, and to receive the complaints or demands of interested parties.

With such guarantees it is absolutely impossible under any but the most improbable circumstances that an arbitrary sequestration can be effected, or, at least, that a prolonged detention without absolute justification can occur.

The law of 1838 has, however, for a number of years become the object of the most passionate attacks, which have several times so completely misled public opinion that the situation became so serious as to make it necessary to take official notice of these attacks. About 1867 the Imperial Senate, in consequence of the great number of petitions addressed to it, proposed some reforms, especially that asylums should be regularly and officially inspected.

In 1869 a great inquiry was undertaken into the treatment of the insane, and into the working of the law of 1838, and a committee was appointed to examine the results. This committee held sixteen meetings, where they recognised that most of the attacks against the existing law were without foundation. When the president summarised these deliberations, he declared that the majority of the committee were favourable to the maintenance of the system of the law of 1838, except that they would add certain amendments deemed necessary.

The committee had to occupy themselves with a Bill introduced in March 1870 before the legislative body by MM. Magnin and Gambetta. This Bill proposed two essential innovations; the institution of a jury, appointed to pronounce beforehand on every sequestration; and the obligation to effect all official admissions to public asylums. The committee after having expressed their opinion that this Bill was marked by a want of experience and foresight, deemed it to be uncalled for. If a jury were constituted, it would meet with a thousand difficulties, in the event of a patient becoming suddenly insane, and requiring immediate admission. On the other hand, it was found impossible to compel a family to submit to admission by order of the authorities into a public asylum, and to take away the consolation of resorting to the more comfortable and secluded sequestration afforded by a private asylum.

The grave events of 1870 prevented the committee from formulating the amendments to the law which they thought useful.

In 1872 a Bill prepared by the *Société de Législation comparée* was introduced into the National Assembly by Th. Rousset, Jozon, and Alb. Desjardins. This Bill specially laid down that every house

where a lunatic was treated should be placed under the same conditions as an asylum, and subjected to the supervision of the authorities. Although this Bill had been studied attentively, the National Assembly separated without having even discussed it.

In 1881 a fresh committee was appointed like that of 1869, and for the same purpose. In the following year the Government laid before the Senate a Bill which, whilst retaining the general plan and most of the clauses of the law of 1838, contained the amendments so often demanded and several important innovations.

The committee devoted two years to the examination of this Bill, which they modified in several points. To bring their work to a satisfactory conclusion, they had recourse to the experience of Ach. Foville, who was then the *inspecteur général*, and who played almost the same rôle on this committee as Ferrus in the preparation of the law of 1838. He acted as guide to the members of the committee, and rendered them services which they warmly acknowledged.

The Senate was then called to deliberate and a law passed, of which we give the principal clauses here:

Lunatic asylums shall continue as two classes, public and private.

Special asylums may be built for certain classes of incurable patients, such as epileptics, idiots, and crétins.

Every lunatic treated at a private house, other than that of his guardian, husband or wife, parent or child, shall be placed under supervision of the authority, who can, if the treatment is found to be imperfect, order that the patient shall be placed in an asylum.

The inspection of public or private asylums shall be made regularly by the prefect, the *procureur* of the Republic, and by the *inspecteurs généraux* appointed for this purpose.

The formalities for admission are almost the same as those of the law of 1838, except that the medical man who sends the patient has to give details in the certificate concerning the condition of the patient to be admitted, and must declare that he has personally seen the patient within a week of such admission.

All persons not minors, who, conscious of their deranged mental condition, ask admission into an asylum, may be received without any other formality than a request signed by themselves, as well as a further statement of their condition. This is certainly one of the best clauses of the new law.

Within twenty-four hours of admission the director of the asylum has to report this to the prefect of the department, to the *procureur* of the district where the person admitted is domiciled, and to the *procureur* of the district where the asylum is situated.

Every sequestration, to become definitive, must at the end of a fortnight be ratified by the *tribunal* of the district where the asylum is situated. The decree of this *tribunal* will take effect, after the certificates and report of the physician of the asylum, and the report of the medical inspector appointed for this purpose, have been produced. If necessary, it may order a special medical report.

The conditions relating to discharge are almost the same as those of the law of 1838.

An important innovation is, that in connection with the penitentiaries separate quarters shall be reserved for convicts who become insane, and that special asylums shall be built for individuals who, after having been convicted, are declared irresponsible on account of mental alienation.

Lastly, the law regulates, under conditions completely omitted by the law of 1838, the question of the property of lunatics, and the management of their affairs, in such a manner as to secure their well-being, their efficient treatment, and at the same time their pecuniary interests.

In short, the law of 1838 has been preserved in its essential character, and it has been supplemented rather than altered. In the course of debate the Senate had to render homage to this law, and to state that it was one of the greatest advances made in the interest of the insane.

But the new law passed by the Senate cannot yet be put in force; it must first pass the Chamber of Deputies. It is doubtful whether the Chamber will leave its text intact, and the Senate will have to examine the amendments proposed by the Chamber of Deputies. This will not be without long delay, and consequently the law of 1838 will continue in force for a long time to come. The opponents of this Bill have only themselves to complain of this delay. But we may say that they are less numerous, less obstinate, and less blind than formerly, because their

attacks, although still sometimes very severe, are at all events less frequent and less prolonged.

However this may be, we may affirm that the *régime* of the insane in France with regard to treatment and to legislation has advanced so far that improvements and ameliorations of a secondary importance alone remain to be obtained in the future.

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FRENZY (Mid. E. *frenesy*; Old Fr. *frenaisie*; L. *phrenesis*; Gr. *φρένις*, for *φρενίς*, inflammation of the brain). Madness, delirium; extreme excitement and mental agitation. Also an old term for a temporary derangement of the mental faculties, excessive anger. (See **MANIA**.)

FULMINATING PSYCHOSES (*fulmen*, lightning, a thunderbolt; *ψυχή*, the soul). Bevan Lewis's term for insanities in which impulsive accessions occur.

FUNCTIONAL DISEASE (*fungor*, I perform). Certain phenomena which result from some disturbance or change in the functions of an organ without presenting any definite organic lesion by which the disease may be distinguished. Also a synonym of **Hysteria**.

FURIBUNDUS (*furibundus*, from *furo*, I rage). Maniacal, mad, raging.

FURIOSUS (*furius*, from *furo*, I rage). Raging mad or maniacal.

FUROR (*furo*, I rage). A synonym of **Mania**; madness. Also an excessive and sudden outburst of maniacal excitement such as occurs in epileptic maniacs.

FUROR BREVIS (*furo*; *brevis*, short). A violent outburst of temper, simulating a maniacal attack.

FUROR UTERINUS (*furo*; *uterus*, the womb). A term used as a synonym of **Nymphomania**. (Ger. *Mutterwuth*.)

FUREUR GÉNITALE (Fr.). Bruisson's term for **Nymphomania** and **Satyriasis** (*q.v.*).

G

GACKEN.—A name given in Austria to Cretins (*q.v.*).

GÆEPHAGIA ($\gamma\eta$, the earth; $\phi\alpha\gamma\epsilon\omega$, to eat), **GÆEPHAGUS.** Dirt-eating propensity. (*See* GEOPHAGISM.)

GALEANTHROPY ($\gamma\alpha\lambda\eta$, a cat; $\alpha\theta\rho\omega\pi\omicron\varsigma$, a man). A species of insanity in which the patient imagines himself to be a cat. (*Fr.* *Galéanthropie*; *Ger.* *Katzen-sucht.*)

GALVANO-HYPNOTISM (Galvani, an Italian physician born at Bologna in 1737; $\upsilon\pi\nu\omicron\varsigma$, sleep). The hypnotic condition in which consciousness is quite extinct, produced by the passage of a galvanic current through the brain, frequently induced in hysterical subjects.

GAMENOMANIA, GAMOMANIA ($\gamma\acute{\alpha}\mu\omicron\varsigma$, marriage; $\mu\alpha\nu\iota\alpha$, madness). A form of insanity characterised by strange and extravagant proposals of marriage, accompanied by little or no erotic excitement. An absurd term.

GAMMACISMUS ($\gamma\acute{\alpha}\mu\mu\alpha$, the letter γ). Difficult or defective pronunciation of the guttural consonants; guttural stammering.

GANGLIASTHENIA ($\gamma\acute{\alpha}\gamma\gamma\lambda\iota\omicron\nu$, a movable tumour, also a plexus of nerves; $\acute{\alpha}$, neg.; $\sigma\theta\acute{\epsilon}\nu\omicron\varsigma$, strength). A synonym of Neurasthenia.

GEISTESSTÖRUNG, GEISTESKRANK (*Ger.*). Terms employed in German to denote unsoundness of mind or disease of the mental functions.

GEISTESSCHWÄCHE (*Ger.*). The German term for imbecility.

GELASMUS ($\gamma\acute{\epsilon}\lambda\alpha\sigma\mu\alpha$, a laugh). The spasmodic or convulsive laughter observed in hysteria.

GELATIO (*gelatio*, from *gelo*, I freeze). Literally a freezing. A term for the rigid state of the body in catalepsy, as though it were frozen. (*Fr.* *gélation.*)

GEMÜTHSKRANKHEIT (*Ger.*). The German term for a mental disorder with melancholic symptoms.

GEMÜTHSLEIDEN (*Ger.*). The German equivalent for melancholy.

GENERAL PARALYSIS OF THE INSANE. — **Synonyms.** * — *Paralyse générale des aliénés* or *progressive*, *Folie paralytique* (*Fr.*); *Paralyse der Irren*, *Paralytischer Blödsinn*, (*Ger.*); *Progressive General Paralysis.*

Definition. — General paralysis is a

* For other Synonyms, see p. 1 of the writer's work on "General Paralysis of the Insane," 2nd edition, 1886.

disease of the nervous system, especially of the brain, marked clinically by (a) some general affections of motility, namely, ataxy, and finally paresis, usually following a definite order and course of development, and especially obvious in speech, and less so in locomotion; and by (b) mental symptoms constituting, or tending to, dementia, but often consisting, in part, of various deliria; also, but in less degree, by (c) sensory disorder or defect; and by (d) definite organic changes in the nervous systems, especially in the encephalon.

Gradual in its *mode of commencement* in typical cases, general paralysis now and then begins suddenly, as, *e.g.*, with a cerebral "congestive attack" (so-called), or with an acute outbreak of mental excitement.

The **duration** of general paralysis varies from a few weeks or months to one, two, three, or more years; a few cases last more than five, ten, or fifteen years; and cases of even longer duration have been reported, but, if genuine, are, at least, exceptions of the kinds which prove the rule. The duration is often long in the "ascending" form where the spinal cord is first affected. But the chronicity of these cases is more specious than real, the whole duration of the precedent *tabes dorsalis*, &c., having been erroneously included as part of the duration of the supervenient general paralysis; and, indeed, if brain and cord are simultaneously attacked the duration of the general paralysis is often short. In galloping general paralysis the duration is somewhat short; short it is in some few of the cases with unusually severe melancholic and hypochondriacal symptoms. Some patients are soon cut off by accessory conditions such as the epileptiform seizures; but those with apoplectiform seizures only, have a relatively longer *average* duration than with epileptiform (Ascher, Newcombe), and than the cases without either; although of long duration is the chronic, demented, second variety, described in our work on general paralysis, and comparatively free from both of the special seizures just named. The *average* duration is longer in females than in males; in the well-to-do than in the poor; in cases with hereditary predisposition to insanity than in those without. Ascher* finds the *average* duration rise in the following scale: (1) cases

* "Allg. Zeitschrift für Psychiatrie," Bd. xlvi.

characterised by excitement; (2) by depression; (3) by uniform dementia; (4) by alternate excitement and depression; (5) by apoplectiform attacks.

Precedence of Orders of Symptoms.

—In most cases mental symptoms precede distinct motor ones, and of the latter the earliest are psycho-motor in the typical forms; yet occasionally the symptoms which soonest attract attention are some of the “seizures,” or some motor or sensory phenomenon.

The question whether general paralysis supervenes in ordinary insanity may almost always be answered in the negative; yet in some cases the operation of new agencies, or aggravation of old ones, lights up general paralysis in a chronic lunatic, as—*e.g.*, general paralysis supervening in chronic paranoia. As to the possibility of a transformation of a chronic functional psycho-neurosis into general paralysis, I have seen pronounced mental alienation precede the somatic signs of general paralysis by weeks or months, or by one-and-a-half, or between two and three years; but in these cases, apparently, the precedent psychosis and the general paralysis were fundamentally connected as successive phases of the same morbid operation, or successive effects of the same morbid process—if of different parts of it.

As to the mode and time of sequence of individual symptoms in general paralysis; in the *motor* sphere there are in general terms, and in order of time, (1) ataxy; (2) paresis added to ataxy; (3) increase of ataxy and paresis to a state of helplessness. One of the motor affections, that of speech, is usually the one first recognised, and tremor and twitch of tongue, lips and face, and locomotor inco-ordination of the lower limbs are sometimes noticed early in the disease. Ocular symptoms, and impaired co-ordination of the finer movements of the hands, may soon be observed, or may even appear first.

The *mental* symptoms occur in the most varied possible time and mode of sequence. The moral feelings, perturbed at first, rapidly undergo disintegration and decay. After a preliminary despondency, the emotional state often tends to be gay; later, to be depressed, morose or peevish; and finally to die out. More or less dementia is present in all cases from the early stages, is irregularly progressive, and is often very extreme towards the close. Both general and special senses become blunted or even lost, but less so, and later, than other functions.

If exalted notions are present it is

usually at or shortly after the onset of the established general paralysis (second period) that they are most active; melancholic symptoms often occur early, they, or hypochondriacal ones, may crop up at any other, except the latest, part of the course of the malady, or may rule throughout.

Relative Intensity of the several Symptoms.—Both the mental and motor are usually more intense than the sensory; and the mental may run riot when the motor are still slight. In all alleged examples of the existence of general paralysis without mental symptoms there is defect—failure—either intellectual or moral, or æsthetic deterioration, or affecting all three; or else an error in diagnosis has been made.

Course of General Paralysis in Women.—In females, general paralysis runs a milder and longer average course than in males, and its remissions are less frequent and less marked. Mentally, there is more often a quiet dementia; physically, spinal symptoms are less often decided, the ascending form of general paralysis is more rare, the chief special seizures are less frequent and severe; on the contrary, the hysteriform seizures occur in women chiefly. At the onset the menses may be irregular, or, later, become suspended. Rey found in the hysterical cases, frequently, eroticism and maniacal excitement with continual mobility. The hysteria yields ground to the general paralysis. Régis finds general paralysis occur very rarely in hysterical women.

Simple and complicated General Paralysis.—In simple general paralysis the mental motor and sensory phenomena run the usual course. In the “complicated” form are important invading but inessential symptoms, whose point of departure is the cerebro-spinal axis. Of these complications of general paralysis, the chief are epileptiform, apoplectiform, simple paralytic, hysteriform, tetaniform seizures; marked progressive muscular atrophy, acute meningitis, or encephalitis, circumscribed lesions of brain cord or nerves, *tubes dorsalis*, &c. Yet one must avoid the error made of terming almost every organic brain disease which produces dementia and paralysis, a “modified general paralysis.”

Stages.—The division of general paralysis into stages is of limited value and only to be made in a very restricted sense; being mainly founded upon the mental phenomena, there are many cases to which it cannot be applied, so diverse are the order of evolution, the duration, course, and association of the mental symptoms.

Sometimes two or three, sometimes four or more stages are described. Dividing, as we do, into four stages, there are:—First, a prodromic stage of moral, emotional, intellectual, alteration; secondly, a stage of decided mental alienation, or of dementia only; thirdly, a stage of chronic mental disorder or confusion, or increasing dementia, active mental symptoms of the preceding stage frequently undergoing remission; and fourthly, a stage of fatuity, of prostration of mental, motor, sensory and nutritive powers.

Stages equally accurate, but less striking, might be made from the phases through which the motor signs pass.

Three stages only are more usually described, and in order to obviate confusion we use the word *periods*; the first corresponding to a *prodromic* stage, the second, third and fourth corresponding, respectively, to the first, second and third stages of the *established* disease.

Such are the stages; but the majority of the cases diverge more or less considerably from this type; any one stage may be absent, and in some no distinct stages can be traced; a progressive ataxy, paresis and sensory failure, with dementia—or with early exaltation, and later dementia—being the chief outlines.

Of the symptoms of the morbid processes in general paralysis, some are in the first rank—are, in a free sense, characteristic, and are almost constant; others in the second rank and accessory; and others in a third rank, and relatively infrequent and accidental.

Prodromic, or Period of Mental Alteration.—As in the others, so in this prodromic period, there is the utmost variety in clinical form and duration, some types being more frequent, yet more characteristic. But the more accurately the histories of typical cases are given by observant friends the longer, as a rule, does the prodromic period seem to be; and many months, or even several years, of some perceptible change have preceded the point of time at which the friends definitely perceive the manifest mental derangement or dementia.

In general paralysis of the simplest form there is, throughout the whole duration of the disease, on the mental side, solely or chiefly a dementia, a decay or destruction of the moral intellectual and emotional faculties: in other forms, comprising the majority of cases, some active mental symptoms appear, such as the various insane deliria.

Examining the onset of most cases of general paralysis, some mental modification is observed. The moral, æsthetic,

affective powers begin to pass into decay and dissolution, as shown in demeanour or action, or there is exaggeration of a naturally choleric emotional disposition. The higher co-ordinations, the supreme inhibitory mental functions, fail, and peculiarities of conduct or habit are now often noticed. There is at first defect of the higher moral and intellectual activities, of the highest, latest-acquired, ideal representations gained through speech; reason, judgment, fail; and the acts cease to be guided, as formerly, by religion, altruism, sense of morality or duty, patriotism, love of family, of truth, of friendship, of beauty; there is defect also of the close alliance of conception with motor impulses. Thence come change of character, and of the highest and most complicated activities; and incapacity for storing up and combining new mental acquisitions. As well as the intellectual life, are the moral and affective touched; their disorders, indeed, may appear to be primary, the moral powers suffering more notably in one case, the emotional in another. Of all the prodromic symptoms, *failure* or perversion of the moral sense is the most important, and is closely linked with intellectual disintegration. To this failure or perversion of the moral and affective faculties in the prodromic stage of general paralysis special attention was long ago drawn by Brierre de Boismont. Even years beforehand may be unwonted acts of indelicacy, impropriety, debauchery with apathy and indolence, or great irritability of temper, failure of the usual determination of character, threat of suicide. This disease, therefore, is often to be feared when sudden apparent moral falls or delinquencies, of which theft is one of the most frequent, occur in those hitherto without reproach. In many a case some affective perversion, some moral or other mental change, has been noticed long before the alleged onset of the disease.

The language of the patients is sometimes changed in character, is coarse and foul, rude, insulting, blasphemous, or brutal. Sometimes there is coarse jesting, or unwonted familiarities or liberties with servant maids. Some lie and dissimulate (as it were) in the most imperturbable manner; or from forgetfulness and mental weakness and disorder openly and coolly commit theft. This may also occur in the next period of general paralysis.

Appetites and Desires.—Loss of genital power and desire has sometimes been noticed as a prodromic symptom. On the other hand, sexual excess sometimes

exists at the onset, and when deemed to be a cause is often only a prodromic symptom. Excess and coarseness in eating and drinking, or even fecal self-defilement may occur.

Intellectual Defect.—The last and latest conceptions formed in the course of evolution, those of the highest altruistic, moral, religious, social type, fail first. Memory fails, especially for recent events, tenure of the more recent mental acquisitions is specially feeble and fleeting, and with progressively lessening power of attention and of memory, the acquirement and retention of any new ideas, the formation of any highly complex conception become progressively less. The last evolved, latest acquired intellectual attainments and training dissolve. The next lower and lower powers are freed from control in various degrees, and are in corresponding degrees of over-activity, but their turn is to come, successively, later on.

But what the patients' companions are, perhaps, more apt to notice are, absent-mindedness, forgetfulness of duties, appointments, and even meals, and of the consequences of irregular acts; incapacity to fix attention, and, resulting from all these, incapacity to carry on the usual occupation and gain a living. Mentally confused, imperceptive, drowsy, forgetful, the patient may also have the feeling of being "stunned," or giddiness, or heaviness or lightness of head, or a dazed dull yet excitable state, or one of vivid disagreeable dreams. There are inattention, lack of adaptation, an irregular fitful blundering prosecution of duty or business. Forgetful of what he was about to say, making mistakes in counting or changing money, or in the simplest arithmetical calculations, the patient is easily confused.

Or emotional depression may overcloud. Cast down, despondent, distressed about trifles, apathetic about important affairs, inattentive, neglectful, languid, lacking interest in life, relaxed in energy, and full of vague fears, these patients may yet be irascible if roused or opposed. Increasing, this condition may appear as the melancholic or hypochondriacal variety of established general paralysis. Here the early symptoms set the tune for the future ones. But the precursory depression, anxiety and foreboding more usually are not extreme, are unnoticed or soon forgotten, or not taken as portents of the coming trouble.

The alternation of emotions may be rapid; the act of weeping may exist without emotional depression.

On the other hand, there may be a serene, nonchalant, viniform, elevated state or disposition, rash or even reckless conduct, instability, expansive, busy, speculative, restless, fitfully energetic method of work or business, yet with some loss of the usual foresight and acumen, brusque manner, forced and noisy laugh and conversation, absurd and extravagant projects, prodigal expenditure of money or of credit in needless gifts or purchases. At night, insomnia is often added. But be this the case or not, drowsiness or somnolence may be evinced during the day, especially after meals, and even in public. Mobile in resolution, addressing or visiting persons of great reputation or notoriety, perhaps salacious or openly indecent, the patients may offer absurd and varying excuses for their conduct. In place of previous depression or distrust, come gaiety and self-assurance, sleeplessness, restlessness, a speculative, ill-directed over-activity which may evince itself in generous-like, philanthropic schemes, confidently put forward, but impracticable in themselves, or else showing an entire lack of adjustment to the resources of their projector, who is falling under the sway of an expansive egotism, an inflated view of his influence, power, aptitude or even position. The activity may become extreme; the patient wandering to and fro by night and day, petulant, loquacious, issuing self-contradictory orders, roused to furious anger by the slightest opposition or most trivial occurrence, his irritability of temper may explode in destructive or dangerous acts, and like others of the prodromic symptoms these may continue into, and form part of, the clinical aspect of the established disease.

The over-activity at the beginning of general paralysis insisted on by P. Moreau, Em. Régis, Falret, Christian, Ritti, Ball—which has been termed functional exaggeration, and described as being persistent, intense, impulsive—may exhibit itself in one, or a few of, or all the functions, intellectual, emotional, motor, sexual, vegetative. V. Parant* even described this state as bestowing on the patients qualities and aptitudes they had not before. But it is scarcely correct to speak of this as a functional exaggeration; it is disorderly over-activity on the lower level of action (of evolution) associated with, and due to, loss of control, of supreme co-ordination or inhibition, owing to the destructive effect of the lesion upon the supreme mechanism of the brain, the apparatus of the highest associating, co-ordinating, controlling faculties.

* *Annales Méd.-Psych.* July 1877, p. 14.

Sullenness and taciturnity may be added to some of the above symptoms; or, rarely, to a suspicious miserly state.

Narcotic drugs and alcohol often have an extremely enhanced effect.

Much that is done, more that is left undone, indicates grave enfeeblement of mind. Ideas, as they arise in consciousness, may instigate action without the normal checks or inhibition; or conduct may be semi-conscious only, as when indecent acts are done without object or gain. A confusion between things desired and possessed; desire satisfying its bent, by an obscure impulse; or expansive feeling;—severally or jointly, may lead to theft. There is, also, no fixity, no tenacity, in the purposes which engage the mind; the old schemes are abandoned and derelict, and the new may command but a flagging and flickering interest.

As to the **prodromic physical symptoms**, the sensory are sometimes the earliest noticed. Hearing may be lessened, or deafness may appear and may be sudden and transitory; or transitory blindness may occur years beforehand, or transient or persistent, beginning months before. Headache may be severe, and may lead the sufferer to knock his head for relief against the wall. Precedent migraine usually clears up at the outset of general paralysis. Neuralgiæ may affect the head, spine, or limbs, and especially so if spinal symptoms precede the cerebral ("spinal" or "ascending" form of general paralysis). Spinal symptoms, indeed, including ataxy, are very often premonitory. Visceral neuralgiæ may occur. There may be "globus" feeling in the throat, or the sensation of pressure or fulness about the hypochondria or stomach, subjective sensations of heat or coldness of one limb or of more, pricking or formication of skin, or sensation as of electric shock in the head, or modifications of the muscular sense, or sparks before the eyes, loss or disorder of colour-vision.

Among the vaso-motor symptoms at this time are to be mentioned: flushing of face, alone, or alternating with coldness; heated head; palpitation, with injected eye, and lively look, and aural tinnitus; cracking, ringing, or blowing sounds in the ears, occurring from time to time; or vertigo; or momentary sensation of being stunned. Hepatic and gastrointestinal disorder may arise.

The motor symptoms now are usually psycho-motor; the fine, most recently acquired accomplishments fail first, those which necessitate the most numerous associations of motor single ideas or impulses, and extensive and complicated association

of cerebral innervations and of muscular co-ordinated adaptation for the adjustment of numerous movements in the achieving of a delicate operation. The muscular action readily becomes not only irregular but tremulous. The handwriting may show this. Speech may evince some dyslogia defects, and even some articulatory, and during it, or at other times, voluntary movements of the lips, face and tongue, may be accompanied and interrupted by tremor or slight twitch. The tongue may also move slowly and heavily. There may be recurring transient aphasia.*

In some cases, even so early, the pupils are contracted, irregular, unequal, or possibly sluggish to light. External ocular or local facial paresis or paralysis may exist, especially in syphilitic cases; or optic-nerve atrophy (Wiglesworth).

Rarely, some slight inco-ordination of gait may now be observed (in cases without *tabes dorsalis*), or the patient may be easily fatigued, or a momentary weakness or sinking in one limb or in more, but, as a rule, the coarser movements of the limbs are free at this period. Many patients can run and dance almost as well as ever, and in fact the ordinary ataxy and paresis are often absent now.

The earliest precursors may be slight or marked convulsive, or unconscious, or quasi-syncopal, seizures.

Invasion.—The *invasion* of developed general paralysis may be by gradual increase of the mental failure, ataxy and paresis; or *distinct invasion symptoms* may consist of so-called "congestive" seizures, varying in intensity from swimming and aching in the head, mental confusion, tinnitus, and pricking of the skin, to coma, palsy, and convulsion; or the invasion may be by an acute attack of mental excitement, or other acute mental disorder; or by a protracted one of insanity, and for a long time without distinct somatic signs of general paralysis.

Second Period (First Stage of Established General Paralysis).—When general paralysis becomes established as a definite disease, some of the mental symptoms already mentioned undergo increase, and there is progressive impairment of moral and æsthetic senses, of highest intellectual culture, of noblest and latest mental acquisitions in the race and in the individual. Firm union of the higher ideas, and the formation of conclusions fail; the conceptions are incomplete, and their symbols—namely, words—fail also, or, if not lost, become formal only, and the

* See also Dr. Savage, *Brit. Med. Journ.*, April 5, 1890.

teachings of experience melt away. Later the lower ideas fail, ego-consciousness becomes more and more defective. The conduct of the sufferers progressively becomes more profoundly changed. Beyond this, the mental symptoms *at first* may mainly be those of (1) dementia; or of (2) expansive delirium; or of (3) active mental excitement; or be (4) hypochondriacal; or (5) melancholic; or (6) persecutory; or (7) stuporous; or (8) circular.

Yet a kind of mental disharmony, confusion and dementia are of the essence of the mental state throughout general paralysis, and are analogous at first to the ataxy, and then to the paresis, in the motor sphere.

(1) *Symptoms of Dementia predominant.*—Here are to be found all grades of mental failure and loss from disease. In some examples there is merely a gradually increasing impairment and ultimate loss of attention, memory, logic, volition. In some there are added insomnia, meddlesome untidy restlessness, destructiveness, and foul habits; in a few are rare paroxysms of excitement, or some morbid perception or idea of danger; some terror and attempt to escape from imaginary evil. There may be amnesia, blunders, forgetfulness, mental confusion, sudden fits of abstraction, cessation of work or conversation, explosive irritability about trifles, vertigo, headache, oppression or lightness of head, quasi-automatic acts, offences against public decency and social propriety, coarse manners, slovenliness, criminal assaults, many anomalies of self-consciousness and cœnæsthesia. In some are paroxysmally the phenomena of *silent excitement*; or heated head, teeth-grinding, self-neglect, resistiveness; or a childish rhythmic repetition of a few fragmentary phrases.

(2) *Expansive Delirium predominant.*—Mental failure and confusion, or hypochondriac, or melancholic, symptoms may precede.

(a) In one sub-form the emotional exaltation of general paralysis reaches its highest pitch. Joy, gaiety, hilarity, fill the patient, and with felicity his cup runneth over. The countenance is beaming, the eye bright, the figure expanded, the movements are lively, free and glad-some. The imagination, gradually freeing itself from control, may conjure up visionary schemes for the enriching of the multitude, for the ennobling of mankind, and for the regeneration of the race; all to be effected by the force and supreme energy of the patient himself.

With this are usually exalted delusions—manifold, varying, unsystematised,

absurd and self-contradictory—qualities which they owe to the co-existent, unbridled imagination, and lapse and degeneration of reason's control and of attention. In some cases the delusions are of wealth; and the patient at one moment may state that he possesses a thousand, at the next moment a hundred thousand pounds, or has numerous horses, carriages, servants, jewels, and suits of clothing. Or he asserts that he is judge, bishop, general, or king; of immense sexual power; or of colossal stature, and capable of Herculean feats of strength; or of grand mental endowment, artist, poet, author; or that he is several or all of these. Or that she has many lovers, is highly wed, has surpassing beauty, lovely children, gorgeous dress and jewellery.

Hallucinations of sight and hearing may be present, and harmonise with the grandiose ideas.

These expansive symptoms usually alternate with querulousness, whining distress, childish terrors, irritability, hypochondria, melancholy, mental confusion.

(b) But some patients show merely a quiet pleased self-satisfaction, and gentle exaggeration of the pleasant parts of their past history, or of their future expectations, seen in roseate hue. A childish self-complacency, and irrelevant silly laughter on trivial provocation, may be found in the same cases; and indeed may occur with or without marked expansive symptoms.

The exalted delusions and the emotional exaltation may exist separately, at least for a time. The grotesque exaggeration may concern the hypochondriacal and melancholic delusions as well as the expansive. In the wildest flight of expansive delirium some incongruous statement or act constantly appears; or some accurate account or assertion blent with the delusive ones on the same subject.

(3) *Mental Excitement prominent.*—With more or less of the expansive symptoms just described, there are excitement, restlessness, and often destructiveness, also loss of feelings of delicacy, propriety, or regard for social amenities, the habits, indeed, being degraded, the language foul, the person untidy and unclean. No sharp line, therefore, separates this from the cases in which the expansive symptoms predominate, and the two conditions might be described together, and are essentially of the same nature. Occasionally the excitement is excessive and protracted.

On the other hand, there may be *silent excitement*, the patient resisting, grasping and pushing, perhaps spending hours in this monotonous and aimless seizing, pull-

ing, shoving, thrusting, rubbing of objects, and never-ceasing movements of the limbs and trunk, until the perspiration breaks forth on the heated face, shaky limbs and fumbling hands, yet the patient still works on with stupid earnest gaze.

A malignant exhaustion and destruction, both psychic and somatic, occurs in the maniacal, *galloping form* of general paralysis, in which are excessive and continual restlessness and violence—raving, resisting, violent, sleepless, with dry tongue, sordes, and heated skin, the patient soon passes into exhaustion, temporary partial collapse, and early death.

(4) *Hypochondriac Symptoms prominent.*—Here there is an oppressive condition of hypochondriacal feeling and idea. The delusive beliefs usually are to the effect that the patient's hollow viscera are closed or obstructed, so that he cannot swallow, or cannot defæcate; or that his eyes or nose, his throat or gullet, his head or heart, his liver or bowels, are diseased, or rotten, or wasted away, or "gone"; or that his whole frame has dwindled to dwarf or infantile size. Thus, the symptoms are chiefly morbid ideas and sensations as to obstruction of hollow viscera; absence or destruction of some organs or parts of the body; rottenness of this or of that organ; imaginary debility and helplessness, or ordinary disease; denial by patient of his or her identity or existence; delusions of belittlement; to which we have added *necromimesis*, in which there is quasi-simulation of death by the deluded patient.

Next to the expansive, the hypochondriac are the most characteristic mental symptoms in general paralysis, and the two kinds are often strangely blended, giving rise to the most grotesque and self-refuting delusions. Resembling the expansive in their essential qualities, the hypochondriacal delusions often are not obtruded by the patients, often are only revealed by a search. In some examples there is tendency to marasmus, gangrene and early death. Some patients wear an expression of apathy, indifference, melancholy, vacuity and lack of ideas; the pendent features, devoid of tension and of mobility, give the face a large and flattened look, whilst occasionally spasmodic twitchings play over it, especially during speech. Depressed, apathetic and immobile, these patients may be roused to expand the countenance in a smile, or it lights up in vague contentment and satisfaction, or even fleeting ideas of grandeur. Usually this condition occupies one stage only, and is preceded or followed by excitement.

(5) *Melancholic Symptoms prominent.*—These may be of any shade of mental depression, from mere sadness to deep distress, suicidal bent, or stuporous melancholia. Terrifying delusions often exist; the patients, stricken with anxiety and terror, declaring themselves to be persecuted, insulted, hunted, or about to be shot or killed, and begging that their lives may be spared. Others obstinately refuse food. With others it is more a querulous, anxious, worried, restless, disturbed state; and such a patient, in distress, may try to get away and reach the persons whose hallucinatory voices he fancies he hears calling to him. Thus the melancholic symptoms may take a hypochondriacal or an agitated or a stuporous form; may relate particularly to poisoning, persecution, poverty, or spiritual perdition, or be associated with "silent excitement." Harmonising with the dejected delusions are usually distressing and painful hallucinations and illusions, often of hearing and of sight, or of smell, or those of all the five more special senses may occur, and even in the same individual. Some say their beds are poisoned; some hear themselves accused by imaginary voices of being the most wicked in the world; the food of some tastes and smells horribly to them, stenches arise from their companions, reptiles within them speak, frightful objects menace them, around them are the horrible forms of hell. Hence they refuse food. The melancholic delusions are mutable and lack cohesion. If these patients attempt suicide or homicide, there is usually no fixity in the reasons they assign; no precaution, concealment, or persistency in their endeavour. Yet at the onset the suicide may be sufficiently desperate, determined, and successful. Melancholic and hypochondriacal symptoms may flourish together, and may rapidly alternate, with expansive ones. Sometimes a largeness of idea is observed in the melancholic general paralytic, who in speaking of his afflictions, woes and sins, uses terms of perhaps grotesque exaggeration.

(6) *Persecutory Delusions prominent.*—A few cases remind one of persecutory paranoia modified by psychological weakness. These patients affirm that they are persecuted and injured in every possible way, that every one about them is inimical. These ideas are fickle and unsystemised. The subjects of them are hostile, threatening, cruel, vindictive.

(7) *Stuporous Form.*—In a few cases general paralysis sets in with symptoms more or less like stuporous insanity. The physical signs of general paralysis are

either absent at first, or are slight and masked by immobility. A decided remission of the stuporous symptoms may now occur; and, next, the physical signs may slowly increase, or if previously concealed, may become manifest, and the mental sky overcast and stormy.

(8) *Circular Form*.—Here are phases or periods of alternate excitement and depression, either separated or not by an intervening period of calm. During the phase of excitement are also expansive delirium, ideas of contentment, of satisfaction, and sometimes of persecution. During that of depression, there may be depressed delusions, melancholy, even to the stuporous form, or a suicidal tendency. What we refer to is a condition with distinct phases, and is not the mental oscillation after one of the "seizures," not a recurring fluctuation only, not merely the ordinary emotional fickleness and variability.

For convenience the mental symptoms may now be followed into the **third and fourth periods**, and up to death. After a greater or less duration of the symptoms above described, may come a decided temporary abatement, or remission, or even apparent recovery, or the patients may steadily drift into the *dementia* of the later stages. Owing to the failure of mind they can no longer produce new ideas and new delusions. Shreds of their former delusions are now repeated almost mechanically, and, towards the close, with little or no involvement of the emotions; the loss of memory and general mental failure are extreme; exaltation is now far more rare than it was; some self-satisfaction may be observed, but more often are the patients dull and unemotional, or sullen, morose and irascible, or querulous, worried and cast-down. Yet there is often, rather, a merely formal expression of these feelings; the inattention, apathy and indifference of mental failure replacing emotion. The mental state often passes from one phase to another; to-day repeating some fragmentary exalted delusions mechanically, or with blurred euphoria; to-morrow the patients are fatuous, or morose and irascible, and these delusions forgotten. Commonly, lost to the sense of shame or of propriety, filthy in habits, untidy in dress, the patients at last become hopelessly demented, and their rapidly failing powers of utterance are perhaps devoted to incoherent reviling, ribaldry and obscenity. At irregular points of the downward journey may occur congestion and heat of the head, with more grave mental heaviness, and often insomnia, restlessness, noisy or "silent"

excitement, self-smearing, furious teeth grinding, increased helplessness.

If the patient survives to the fourth and last period, the mental faculties and coherent speech-power are practically almost abolished, and the merely vegetative existence soon comes to an end. In the abyss of the now profound dementia is obliteration of all moral feeling, and the retention, at the most, of merely a thin spectral semblance of some former phases of ideation or emotion.

We next come to the **mixed physical and mental symptoms**, and **physical symptoms**, of **established** general paralysis (second, third and fourth periods).

Speech.—(a) When general paralysis has become established, the speech more clearly betrays the mental state, for the intellectual weakness, impairment of memory, and of attention, and of precision of ideas, are evinced in the slowness of speaking, lingering pause, hemming speech, search for words, drawling, substitution of some commoner word for the one really required, omission of words, forgetfulness of ideas before half-expressed, and abrupt discontinuance of a sentence or of conversation, or even disorder, transition to a new set of ideas, entanglement of the thread of thought, or repetitions of the same words or sentences, often irrelevantly, owing to mental failure and confusion, or less often to spasmodic hurry in speech; or there may be echo-like repetition of what the patient hears (echo-speech). Hesitating and disordered, the speech may become a choreoid paraphrasia. These psychic affections of speech, like the labial and lingual ataxy, may be masked for a time by great excitement.

Ellipses of syllables may occur, as well as of words; marking a disordered relation between ideation and the functional co-ordination of vocal organs.

Mutism, voluntary aphasia, may be found.

When excited, the patient may pour forth a flood of incoherent words or phrases which becomes merely a logorhœa; for in the headlong course of ideas whose associations are loosened, words influence the train of thought strongly, enhancing its disorder. Stuttering, with its precipitate and tumultuous hurry and omissions, ending perhaps in an unintelligible jargon, may be present; and so may self-question and reply. The whole bearing of the patient, his accent, emphasis, mien and gestures whilst speaking, may be altered; or he may revel in hyperbole, fabricate strange new words and forms of expression, often reverting to the mode of childhood's speech.

To these may now be added disorders of (b) diction, and of (c) articulation (see below).

Naturally, the consonants afford the chief difficulty; especially in pronouncing linguals or labials, or in uttering the syllables of a long word, does the failure come; a stoppage, a faint stuttering is observed, as of one somewhat in liquor; with an effort is the word uttered; and at the same time may often be seen tremulous twitches of the upper lip or of the facial muscles, as in one about to weep. There is a stumble, as it were, in articulating some words, a lingering pause, a thick slow circumspect utterance, a quivering speech, or either a repetition or a slurring over or elision of one or more syllables.

Even early, general paralytics may read incoherently, uttering words wrongly, or uttering them senselessly.*

Tremor of the tongue or convulsive jerks when it is protruded, grinding of the teeth, champing or masticatory movements, increasing pupillary changes, retinal and conjunctival hyperæmia, incongruity between facial expression and emotional state, may each be present.

The occipito-frontalis is often gathered together or twitching; the eyebrows are often raised, the lower lines of facial expression partly obliterated, the features in some degree florid, or showing dilated venules; or, on the other hand, the skin may become coarse and of muddy or greasy or parchment-like appearance. The face, at rest, may be vacant, stolid.

The movements of the hands become lessened in adroitness and exactitude. The handwriting, especially later on, bears witness to the mental and motor involvement; in its omitted letters, syllables, words, dates, signatures, ends of words, or of sentences, or running together of words, repetitions—reduplications—of syllables, words or sentences, making a disjointed fragmentary epistle; in its aptness to be shaky and erratic, its undulating contours and the symmetry of its curves being lost, disorderliness marking the arrangement of letters, of words, and of the lines of writing, or spasmodic stoppages and repetitions defacing it, its letters unequal, shaky, separate, hieroglyphical; the paper smudged, crumpled, dirtied, the address often defaced, and to some great personage.

Usually the gait is still free; in other cases it is slightly ataxic and paretic or slightly spastic; slightly irregular; awkward, uncertain; over-movement in com-

* See also G. Rabbas, "Allgem. Zeitschrift für Psych.," Bd. xli.

pensatory action is effective here. If the spinal symptoms precede, or commence with the cerebral, the gait may be markedly tabic.

Occasionally there is a general subsultus, a quasi-shivering, not from fever or external cold. Attacks of vaso-motor disorder and cephalic hyperæmia may continue now. There may be colour-blindness, impaired sight, hallucinations and illusions, and rarely visual or auditory hyperæsthesia. The muscular sense, the organic, and the tactile, often undergo perversion, occasioning muscular fatigue, lassitude, or strange sensations, as to the position, expansion, shrinking or flight of the patient's body or limbs. Loss or diminution of sense of smell is frequent now: hyperæsthesia of skin or of various cranial nerves, or anæsthesia, real or apparent, may occur.

Passing to the next and *third* period: except during some remissions the *speech* is now worse; several of the speech-conditions described in the preceding stages are still existent, are aggravated, and are reinforced by others dependent upon a more advanced stadium and a downward extension of the lesion to the lower nervous speech-apparatus. It is now the disorders of diction, and those of articulation, which are most marked. Under the former we range ataxic aphasia, amnesic aphasia, paraphasia, word-deafness, various syntactic disorders or akataphasia, confused speech, and, partly, syllable-stumbling; and after some of the convulsive or soporose seizures do some of these most frequently occur temporarily. Under the latter (*i.e.*, articulatory disorders) we range indistinctness, mumbling, slight abortive varieties of stammering and of stuttering, complete or partial repetition of syllables, quivering or shaky speech. Partly here, are the methods of attaining easier transitions in articulating, as by intercalation of vowels.

Thus the words are jumbled together; the hesitation increases to a momentary arrest of speech, usually ending in an explosive utterance and elision of syllables. Or utterance is mumbling, drawling, and with it are twitches of the lips, face, and tongue, whose voluntary movements, also, may be several times repeated.

With some of the preceding, especially those after the seizures, may be *alexia*, incapacity to read; *apraxia*, or loss of memory of use of even common articles; also *agraphia*.

Phonation.—The voice may be deep, rough, hoarse; or expiratory force and tension of vocal cords are lessened, the voice becoming weak, monotonous, low-

pitched; or low from unregulated tension of cords; or intonation is raised; inflection fails.

The protrusion of the tongue is jerky, partial, momentary. Reflex action and sensibility of the soft palate, pharynx and larynx are lessened, deglutition is impaired, the patient may be choked by food.

Face.—The twitch of zygomatic and other muscles adds tumult and distortion to the broad, expansive, semi-fatuously smile of the general paralytic, and chiefly so when with vast effort he attempts to speak or protrude the tongue. While the mouth loses its firmness and the lips and lower face become flabby, coarse, and their lines of expression partially effaced, the forehead often (and even at an early period) is corrugated, and the facial balance distorted and awry. The facial expression is much altered owing to this relaxation of the lower parts of the face, and to relative over-action or muscular twitch or spasm about the eyebrows and forehead, which tends to produce an unwonted expression of unfelt astonishment or regret; or in expressing joy comes a tearful aspect. Thus at the same moment one part of the face may seem to express one emotion, another part a different emotion. At last, a laugh, a threat, a look of amazement or of fright, comprise all the emotional expressions. The staring disparted coarse hair, ribbed forehead, widely open eyes, fatuous glance, and forward-bending head, make up a distinctive mien and cast of countenance. Or the visage may become dull, glassy, vacant, the eye-axes divergent; the eyelids sink, and give a sleepy aspect.

The pupils are usually unequal, irregular in shape, sluggish to light, both as to direct and consensual reflex or in the reflex dilatation, due to skin-irritation; or accommodation may fail (irido-ciliary). The immobile pupils may dilate under bright light. The two irides often differ much in the degree or kind of change sustained. (For ophthalmoscopic condition see special article).

The body is often bent awkwardly forward or to one side. The gait is slow, unsafe and swerving; or, later, even zigzag, with the feet kept wider apart than usual; or if hurried is more unsteady still. The steps are short, groping, or even dragging; or the gait is of tabetic or of spastic impress. It is unsafe; stumbling and falling are easily produced. Progressively, but with fluctuations, manual dexterity fails, as in dressing, in writing, or delicate work.

Usually the early ataxic conditions are

now largely replaced by spastic or paralytic ones. As time goes on, the patient is more helpless, or is bedridden, which last occurs sooner if the spinal have been early and highly marked in proportion to the other symptoms. If at last he lies in bed, the head and neck are often bent forward and raised from the pillow for hours together, the patient gazing fatuously here and there or in front of him. In a few cases the lids droop in temporary ptosis, supervening or not on local spasm. Often the legs are now more or less contracted and flexed, the forearms and hands flexed and lying across the chest; expression is vacant, the tongue protruded with great difficulty or not at all; the features are swollen, greasy, or thin, earthy, coarse; the passages are involuntary; while in many the teeth are noisily ground together by day and through the silent watches of the night. Or the hands are clapped, or the head is rubbed, or guttural noises are made, or lip-smacking, or sniffing, or sucking, or clucking sounds; or as when lips from kissing disunite.

Epileptiform or apoplectiform seizures are now rife, in some.

Impaired sight or blindness, or confused vision; or a degree of "psychical blindness" may be present. The other special senses may fail. Smell and taste often seem to become diminished or lost, and cutaneous sensibility, also.

The habits and manners of the patients, as in eating, have become degraded. Incontinence of urine and fæces are usual, and may occur early; retention of urine, diarrhœa, or constipation may occur. Cachexia exists, the blood is altered. Trophic lesions are apt to occur—bedsores and othæmatoma, &c.

In the **last stage** of all, at which not very many arrive, if the spastic element is dominant, movement is attended with the utmost trembling and shakiness; or, if the paralytic element predominates, the movements are feeble, ineffectual, and of small range. Seated upon a chair, the patient leans or tumbles forwards, or to one side; placed upon his feet, he stands still in an awkward attitude, or he stumbles awkwardly, or falls in the attempt to walk. Therefore, he is usually bedridden. And now contractions of the limbs increase or appear, and induce an unwonted deformity.

At last, foul in habits, with special senses blunted or lost, with cutaneous and general sensibility as well as motor co-ordination almost abolished, unable to swallow with safety, he lies at the gate of death, wasting, afflicted, sometimes with diarrhœa or pulmonary

lesions, and still, perhaps, grinding the teeth.

Special Symptomatology.—To avoid overloading the description, only the chief, more constant, and direct symptoms have been briefly described. On these and other symptoms a few words may now be added.

The Failure of Moral, Æsthetic, Religious Feeling.—It is its occurrence early in the disease that gives this failure its medico-legal importance. The illegal acts are the outcome of mental defect and disorder from organic brain disease, and often largely due to confusion and dementia. Some rush into debauchery or open indecencies, attempt pæderasty, form adulterous or bigamous connections. Some become destructive, or make unprovoked objectless assaults, or incendiarisms, or burglaries, or murder. Theft by a general paralytic usually bears the impress of his disease. The objects he steals are often devoid of usefulness or value to him, the theft is often done openly, and the aid of strangers, or even of the police, may be sought; if detected, he may confess, or make shifting and self-contradictory statements, but may be cool and shameless. The act may be impulsive, or may be due to expansive ideas as to his possessions and rights, or to mental confusion and failure, which may even be to such a degree that the act is an involuntary automatic one of absent-mindedness.

Dementia.—The progress of the dementia may be fairly followed through the speech. The dementia also affords to the deliria of general paralysis something of their special impress.

The loss of memory in general paralysis may undergo factitious, more rarely genuine, remission. It accounts for many of the strangest of the symptoms, such as the quiet, imperturbable, apparent lie or dissimulation. The memory for recent events suffers the most and earliest.

Anomalies of self-consciousness are related to the weakness of thought, of logical connections, and of reproduction of impressions, and are allied to the hypochondriacal delirium. The anomalies may grow to a feeling of change of patient's identity or substance, or of having died, or of possessing a double personality. He may speak of himself in the third person. As general paralysis advances, self-consciousness is gradually weakened, narrowed, and dies out.

Anomalies of Cœnsesthesis.—In the prodromic stage, or in remissions, is often a feeling of disease, and vague consciousness of actual state. In a depressed stage are feelings of bodily weakness, disease,

decay; in an expansive stage, the same may alternate with the usual morbidly buoyant feeling of redundant power.

Emotions.—Emotional control is loosened, as shown in the preternatural ease with which the emotions are often brought into play, the rapid changes from one form of emotion to another, and the shallowness of each. The description of emotions in general paralysis is inextricably blended with that of its deliria, and its deliria are built upon and permeated by dementia.

Hallucinations and Illusions in General Paralysis.—These are more frequent and important than is usually described. They are sometimes vivid and forcibly expressed by the sufferer; but sometimes are only revealed by repeated and careful search. As a rule, they do not profoundly modify the psychosis.

We analysed 100 male cases of general paralysis in reference to this subject. Some were too demented for the facts to be fully elicited; in some, hallucinations are temporary. Probably nearly three-fourths are hallucinated, or illuded, at one time or the other; and probably more than half get perversion of common sensibility, so fruitful in generation of the hypochondria.

Out of 100, 41 had visual, 40 auditory, 12 tactile, 12 gustatory, and 11 olfactory, hallucinations. In 18 were hallucinations of one special sense only; of two special senses in 24 (usually sight and hearing); of three special senses in 5; of four special senses in 3; and of all five special senses in 5. We found visual and auditory hallucinations about equally frequent in general paralysis, in contrast with the 50 per cent. of visual, and 80 per cent. of auditory hallucinations in the total (mostly chronic) cases under our care at a given moment. As a rule, they are irregularly recurrent, are mutable, inconsistent, often multiple, absurd like the co-existent delusions, crude, tumultuous in character. When several senses are affected, those of different senses may refer to subjects quite distinct; and one hallucination may contradict another simultaneously existing. They may be extremely disagreeable, even terrifying, or repulsive; or may be pleasurable. Those of smell, taste, and less often of touch, are usually unpleasant or offensive.

Disorders of Muscular Sense.—The muscular sense is often disordered in general paralysis. The perception of movements actually made may be disordered or lost; or the patient may say he "can't move," "is whisked about," "flies like a bird," "can lift millions of tons."

Special Seizures in General Paralysis.

—These are not limited to general paralysis, nor do they occur in all cases of it. They may be sub-divided chiefly into epileptiform, apoplectiform, and simple paralytic seizures, and these have a close pathological alliance, and are separate branches of the same tree. The tetanoid and hysteroid seizures are other varieties. Notwithstanding an usually elastic recovery from the immediate effects of the seizures, the tendency is for the motor and mental state of the patients to deteriorate to lower and still lower levels after successive sets of seizures.

Epileptiform Seizures (in a wide sense, including "hemispasm"; attacks indistinguishable from *petit* and *grand mal* of epilepsy; local twitches; quasi-syncopal attacks).—Epileptiform seizures may open the known history of the case, may occur during any part of it, and often, becoming more frequent, attend its close. The utmost variety obtains in the degrees of their severity, extent, and duration. The seizures may be like the major ones of true epilepsy, and these, or the less severe ones, may become subintractant, and dangerous to life or even fatal. Usually the convulsions are slighter, and often afflict the face and arm, or face and limbs, on one side, with or without slighter twitches affecting less of the opposite side; or, slighter still, the seizure may consist of twitches of some isolated muscles or muscular groups on one side or on both sides. The seizures may occur simply, or in sets, or be repeated remittently for hours or days together; and, during them, consciousness may be lost, or be more or less retained. Following them, as the shadow the body, is some degree or condition of motor paralysis of corresponding distribution; temporary hemiparesis, or hemiplegia—often with conjugated deviation of eyes and rotation of head—following the unilateral convulsions; or various dysphasic conditions, or "psychic blindness," &c.

Still slighter, and analogous to the minor and to the minute attacks of epilepsy, are seizures consisting of a sudden pallor, with mental confusion; or of dilatation of the pupils with head drawn to one side, or mouth agape; or of sudden fixation of the lineaments, or an expression as of shock, together with cold perspiration, or with the muttered automatic repetition of coherent or of incoherent phrases.

A slight convulsion may be followed by severe coma, forming the link between epileptiform and apoplectiform seizures.

The convulsions may be aggravated, or reproduced, by incitations, even slight and

special ones, affecting this or that part of the surface.

Apoplectiform seizures, in their well-marked degrees, are less frequent than the epileptiform. There may be premonitory mutterings of the coming storm, or it may burst suddenly. The attacks are often recurrent; vary from the slightest to the most extreme degree of apoplectiform unconsciousness and coma; are immediately preceded, and are accompanied, by some elevation of temperature; are partly expressed in turgid congestion of the face, heated head and skin, a rapidly rising axillary temperature, sometimes dilated pupils and involuntary passages; and are frequently followed by temporary paralysis, especially unilateral ones, and, perhaps, conjugated deviation of eyes with rotation of head, and a slough on the buttock of the palsied side. Occasionally, the hemiplegia is alternate, of the limbs on one side and third cranial nerve fibres on the other.

Simple paralytic seizures are those in which temporary sudden motor collapse, and decided local paralysis, even hemiplegia, or monoplegia, occur without known convulsion spasm or coma. Or, independently of either of the forms of seizure described above, there may be a slight and transient local loss of power, or local increase of pre-existent wider paresis.

Tetaniform Seizures.—Tonic spasm of muscles of chest and neck, or tonic spasm replacing clonic of the epileptiform seizures; rigid limbs and trunk; pleurothotonos or opisthotonos, trismus.

Hysteriform seizures occur chiefly in female general paralytics. But even in male cases may come uncontrolled, emotional, hysteriform waves with, perhaps, muscular trembling and twitch.

Reflex Action and Reflexes.—Many general paralytics start back and blink the eyes when a sudden movement is made towards them, or they are startled into sudden lively movement by a touch. The superficial reflexes may be lessened, lost, or increased, at any stage; and often fail in the latter; and on the whole the skin-reflexes are often lessened or lost.

Bianchi* and Bettencourt-Rodrigues† observed that, in general paralysis, expansive mental symptoms correspond to exaggerated reflexes, mental depression to lessened or abolished reflexes. But in the early stage of a typical case are exaggerated knee-jerk, and lessened or lost plantar reflex; and the early exaggeration of reflexes is supposably related to the

* *Archivio Italiano*, 1880.

† *L'Encéphale*, 1885, p. 170.

congestion, excitement, functional dynamic quasi-exaggeration of the early stages of general paralysis.

Knee-jerk.—Temporarily or permanently, in general paralysis, the knee-jerk may be increased, normal, lessened, or lost; change of it may be of functional or of organic origin; and it may vary widely at different parts of the course of a case. The jerk may differ in the two limbs, often varies in its quickness in different cases, and in the readiness with which it follows the stroke. The superficial and the deep reflexes are often dissimilarly affected, simultaneously, in general paralysis.

Comparing general paralytics, grouped as they exhibit (1) absent or (2) exaggerated knee-jerk, we find, with *absent* knee-jerk, a relatively larger share of pain, wet habits, hallucinations (and slightly, of epileptiform seizures and ataxiform gait); and lessened feeling of, and motor reaction to, pinches and tickling of the feet. And, on the other hand, with *exaggerated* knee-jerk a large, almost exclusive, share of quasi-syncopal seizures, and much jerk and spasm in movement. In either, the gait may assume various forms.

Temperature.—As to average *axillary* temperature in middle and later stages of general paralysis, we found that a rise in the temperature often accompanies a maniacal paroxysm; often precedes and announces approaching apoplectiform and epileptiform seizures, and nearly always accompanies and follows them; and when the above states are prolonged the associated elevation of temperature is usually prolonged also, but when moderate they are not invariably associated with increased heat of body.

A transitory rise in temperature may occur without apparent mental or physical change.

The evening temperature is usually higher than that of the morning, in general paralysis; and an absolutely or relatively high evening temperature often occurs in cases rapidly progressing. Such cases, also, may show morning and evening temperatures above the average for a long time before any complication exists. Gradual exhaustion may pass on to death, with an *average* morning temperature continuing normal, or sub-normal (and so except during seizures).

In and after apoplectiform seizures the temperature is higher on the side paralysed, if there be unilateral paralysis. The head and face are heated; the limbs, chiefly the feet and legs, may be cold, and unequally so.

After epileptiform seizures the axillary

temperature (1) is increased; and (2) is higher on the side solely or chiefly convulsed, and may remain so for a day or two. To both these rules there are exceptions. If low the temperature may be 1° or so still lower immediately after than just before an epileptiform seizure. Also, with daily recurring convulsions the temperature in some cases becomes subnormal; and, under somewhat similar circumstances, the temperature, which had been higher on the palsied side, may, a day or two afterwards, on that side, become the lower of the two.

During excitement the temperature, usually heightened, is in some few cases lowered.

Irrespectively of special seizures, there are slight fluctuations of temperature in general paralysis; preternatural mobility, easily evoked change of it. In most cases is a slight evening rise of temperature.

Low temperature occurs in a few cases of advanced general paralysis, with dementia and paresis well marked, and comparative quietude; or occasionally with uræmia, or with spinal-cord changes; or in emaciated, excited, self-stripping patients, of foul habits.

High temperature, if present, is usually in a terminal stage, or with visceral change, or with this and "seizures."

Pulse.—In many cases the pulse is full and hard, the beat of the heart powerful, the first sound clear and full, the second accentuated, the arterial tension increased. In some cases, or in some stages, the pulse has the characters of lessened arterial tension, or has fairly normal qualities. For the most part, the pulse and sphygmogram present a modification and miniature representation of the pulse and tracing of Bright's disease.

Space fails us to enter upon symptoms and conditions connected with urinary excretion, digestion, sweat, saliva, in general paralysis; or with numerous symptoms therein due to paresis or paralysis of widely spread, or of local distribution; or to rigidity, contracture, automatic movements, choreiform movements, tremor cœactus, general convulsive tremor, athetosis, "crises," electrical reaction of muscles; genital, rectal, vesical, and ocular symptoms: a host of sensory symptoms, both as regards special and common sensibility; many vaso-motor and trophic phenomena, and alterations in blood. Also respiratory and pulmonary conditions. Also the *varieties* of general paralysis; and the frequent *dissociation of spinal symptoms* in it.

Remissions.—In remissions the last trace of the mental symptoms is some

moral or æsthetic defect in conduct and in thought; some weakness, or defective staying power in sustained mental effort. Speciously, the remission often appears to affect the mental more than the physical sphere, but even here minute analysis often brings the psychic failure into coordinate rank with the somatic.

Long, or marked remissions* are relatively frequent in chronic general paralysis, with heredity a factor; in the circular form; and in that with excited expansive symptoms. Marked remissions may last for months, or now and then for years. Baillarger would make of the usual so-called remissions of general paralysis merely a remission in, or cessation of, what he terms "paralytic insanity," which, in its several clinical forms—with hesitating speech, unequal pupils, and, usually, muscular ataxy—may occur independently of general paralysis, may precede it, and often complicates it, and in this last case (as in others) may cease, thus giving rise to the appearance of a remission of general paralysis; or if the stuporous form remits there is cessation, not of a true, but of a pseudo-dementia.

Arrest of General Paralysis.—Here the symptoms remain mild or stationary for months or years.

The **terminations** of general paralysis are: (1) death; or (2) recovery; or (3) chronic mental defect or disease.

(1) *Death* may occur from gradual exhaustion; the patients slowly dwindle, decay and die; or death may be from the "seizures," or suffocation, or from intracranial or intra-spinal hæmorrhage, bed sores; acute pulmonary, intestinal, renal or vesical diseases; or from embolism, erysipelas, phlegmon, suicide, or trauma.

(2) *Recovery.*—Taking the cases of alleged or self-observed recovery, after allowing for errors in diagnosis, and for examples in reality of remission only, there remain some genuine examples of recovery. (See "General Paralysis," 2nd ed., pp. 387-9.) Some recoveries have followed upon violent injuries or diseases producing lively revulsive effect (e.g., suppurative, erysipelatous, or traumatic states).

(3) *Chronic Mental Defect.*—In a few rare cases all the symptoms of general paralysis clear up, except a modified remnant of psychic defect as sequela, and the condition remains at a permanent standstill.

Prognosis.—From the above facts it follows that general paralysis is a deadly malady, almost invariably fatal.

Diagnosis.—The diagnosis may be difficult or impossible. Among the con-

ditions most relied on are speech and writing; of these some are chiefly mental, some physical. The other physical signs chiefly useful in diagnosis are twitch and fibrillar trembling of the muscles of the lips, face and tongue, when in voluntary use; the similar condition of the limbs, and the pupillary changes. Paretic, convulsive, and sensory phenomena may help. Another point is the clinical aspect of the mental symptoms; either a gradually progressive mental failure alone, or the same, revealing itself fundamentally in the aspects of the several deliria. The insane ideas are not persistent, nor harmonious, nor logically connected, nor wrought into a system dominating the individual. Lastly, is the co-existence of the two orders of symptoms, psychic and somatic.

At the onset, and therefore when most needed, some of these points often fail. For example, the chief somatic signs may for a time be absent, ambiguous, or slight; in which case also, the co-existence of the two orders of symptoms of course fails as an element in diagnosis. Here, general paralysis must be thought of and watched for in males between the ages of thirty and fifty. Moeli* held reflex iridoplegia (tabes excluded) as an important diagnostic point, and Wigglesworth† the same, with epileptiform attacks; or else primary optic nerve atrophy without apparent cause; whilst Bettencourt-Rodrigues‡ found in early typical cases exaggerated knee-jerk, and lessened or lost plantar reflex.

Differential Diagnosis.—The limits of space allow only of a light touch upon a few of the more important topics.

(1) *Alcoholic Mental Disease.*—Most often it is depressed general paralysis which some alcoholic cases resemble. But their speech-disorder is usually less than in the general paralytics, and proportional to the amount of tremor present, which last is more universal than in general paralysis, and associated with less ataxy and less pupillary change; and the sensorial disorders are much more marked than in general paralysis; the delusions usually differ, being ordinarily of suspicious or persecutory type; and the symptoms of chronic or sub-acute alcoholism loom large. Local colour-blindness, retinal hyperæmia, associated with the ordinary pupillary changes, may distinguish the general paralysis. Rapid cessation of symptoms under the influence of asylum life and withdrawal of stimulants

* *Arch. für Psych.*, Bd. xviii.

† *Liverpool Med.-Chir. Journal*, 1887, p. 162.

‡ *L'Encéphale*, 1885, p. 170.

* Among recently published cases are some by Dr. Percy Smith, *Brit. Med. Journ.*, Jan. 4, 1890.

may assist much in discrimination, as pointing to alcoholic cases.

(2) *Syphilis of Brain, &c.*—As regards syphilis, attention must be given to the history of the case, the co-existence of other manifestations of syphilis, the course of the malady, the indications of local straitly circumscribed lesions or growths, the result of treatment. Also, in syphilis, the absence or less marked degree of the most significant motor signs, such as those of lips, face and tongue; the rarity of exalted delusions; the onset by somatic rather than by psychic disorder; the more irregular course, both as regards the manifestations themselves and their succession; the more ill-defined duration, and often the cachectic appearance.

Syphilis most frequently simulates (if any) the general paralysis in which dementia is the chief mental symptom from the first, exalted feeling and idea being evanescent or absent, while a tinge of depression, with occasional fear or terror, may exist.

At the *onset*, precedence of mental symptoms by motor or sensory disorders, early paralysis of some cranial (often ocular) nerves, early optic neuritis, or local anæsthesiæ, often mark the syphilitic cases. Headache, nocturnal, deeply seated, increased by pressure or warmth, is usually a striking phenomenon.

Comparing the two diseases when *fully developed*; in the syphilitic cases, motor affections of speech, tongue, &c., tend rather to be of a paralytic nature than a mingled weakness and ataxy. Palsies of individual cranial, especially ocular, nerves tell for syphilis. The customary motor impairment in the *limbs* and other parts in general paralysis is ataxic and paretic, is general, and as a rule irregularly progressive; in syphilis it is usually paralytic, localised, and often unilateral.*

(3) *Some Cases of Acute Mania.*—One must disentangle the active mania of general paralysis from simple typical mania. We rely upon the history of the case, the condition of speech, the twitch of the lips, face and tongue, independently of emotion, and especially during speech, some defective mobility of visage, one part of which may be "drawn," another lax and toneless; and, sometimes a predominant expression of ambitious delirium and emotional exaltation. Acute mania in males between thirty and fifty years of age should receive careful watching for general paralysis.

(4) *Monomania of grandeur, wealth, and pride* is distinguished from general

paralysis, with delusions of similar import, by the fixed systematised character of the delusions, and the absence of distinct somatic signs of general paralysis.

(5) Ambitious delirium, unsystematised, and with "focal" lesion, offers distinct traits in the symptoms of the latter.

(6) *Intracranial Tumour.*—In intracranial tumour, as compared with general paralysis, the mental symptoms are *comparatively* late, slight, or absent; the sensory comparatively prominent. The progressive dementia* of general paralysis is simulated, not the grandiose delirium.

The difficulties are greatest in some cases of cerebellar tumour. Here the most important diagnostic symptoms are early, intense, persistent vertigo; ataxy and reeling gait; occipital headache; vomiting; visual disorder or failure; and the *indirect* nature, only, of any paralysis or cutaneous sensory disorders which may be present, or of any rigidity, nystagmus, &c.

Insular Cerebro-spinal Sclerosis.—The distinctions are: the presence, or greater frequency, in insular sclerosis, than in general paralysis, of rigidity and convulsive trembling on faradisation of legs, protracted existence of marked tremor during movements, temporary diplopia, nystagmus, vertigo, markedly scanned or staccato speech, bulbar paralysis, "spinal epilepsy," paroxysms of rigid extension of the lower limbs, or even of the upper, and final "contracture" in extension.

The age and sex of patients, the duration of the disease, and the comparative lateness of mental symptoms, also tend to mark the examples of insular sclerosis.

From *pellagrous insanity* the distinction is sometimes difficult, but is scarcely needed in this country.

Next come several diseases to be distinguished from the *demented form* of general paralysis, and from general paralysis *in the elderly and aged*. These we have only space to name:

"Focal" brain-lesion, with dementia and paralysis; one of which is, local chronic softening and degeneration of brain.

Senile dementia, with paralysis, or speech-impairment, &c., from local lesion.

Next, the *ascending form* of general paralysis must be distinguished from *tabes dorsalis*; at times a difficult task.

Prominent symptoms in general paralysis may necessitate a differential diagnosis: as, for example,

From paralysis agitans, when symptom-

* For this subject in full, see writer's work on "General Paralysis," 2nd edition, p. 220 *et seq.*

* As also in Dr. Percy Smith's case, *Journ. Ment. Sci.*, April 1888, p. 61.

atic tremor cöactus (spasmodic tremor) is marked in general paralysis;

From epilepsy, when the convulsive seizures are early or marked;

From cerebral hæmorrhage, if the apoplectiform attacks are severe;

From the similar attacks in other brain diseases, if epileptiform and apoplectiform attacks are prominent in general paralysis;

From melancholia, melancholia attonita, hypochondria, circular insanity, secondary dementia, chronic or acute generalised palsy, tremors of the aged, chronic defective speech-conditions, ataxy and paresis after severe fevers;—if the respective corresponding symptoms in general paralysis are predominant.

Speech-changes after acute fevers—if with mental excitement and ideas of grandeur—are distinguished from general paralysis by the incompleteness of the picture, and the usually rapid recovery.

Various *intoxications*, or organic changes produced by drugs, may resemble general paralysis;—chiefly those by lead, atropine, bromides or iodides, carbonic oxyde.*

Acute general paralysis must be diagnosed from a number of acute febrile and inflammatory diseases, or acute cerebral maladies.

Causes.—*Predisposing.*—*Sex.*—General paralysis chiefly attacks the male sex, on the average, about four times as often as the female. Yet statistics, for this country at least, disprove the statements made by many as to general paralysis in women being particularly a disease at, or of, the climacteric period, or that a larger relative share of women is affected at that time; and disprove the assertion made by some that general paralysis, on the average, occurs later in life in women than in men, for it really occurs earlier in women, and, of the total number, the fraction of female general paralytics under the age of 30 is nearly treble that of male general paralytics.

Age.—General paralysis occurs chiefly between the ages of 30 and 55. It is said that it is most frequent in the decade age, 40–50; but, in this country, although this is true of the general paralytic percentage of the total insane admitted to asylums, in each decade age (14 per cent., age 40–50; 13 per cent., age 30–40), yet the actual number admitted at the age 30–40 is larger than at the age 40–50. Owing to the brain-strain and exhaustion, the over-pressure and blood-depravation in modern life, general paralysis tends to occur at an earlier age than formerly.

* MOSSO, "Rivista Clinica," Bologna; *Journ. Ment. Sci.*, Jan. 1887, p. 606.

A sanguine temperament, mental activity, a choleric, or haughty, or genial disposition, have been styled predisponent to general paralysis.

Heredity.—It is not so much that the ancestors have been insane, rather is it that they have been apoplectic, paralytic, epileptic, demented; or, short of this, possessing and transmitting the character, disposition, and play of passions favouring the occurrence of general paralysis.*

Heredity is probably a factor in about one-third; more often in females than in males. The percentage of alleged heredity is less in private than in pauper cases. In the ancestors are observed, on the average, longevity, fecundity, capability (Ball); but general paralytics themselves usually leave small families with high infant mortality. Luys † also notes scarcity of progeny, one-third of the marriages of general paralytics being sterile, and the fertile ones only averaging 1½ child.

Conditions as to Marriage.—About 3.6 per cent. of the single, 12.1 per cent. of the married, and 5.4 per cent. of the widowed lunatics admitted are general paralytics. Yet this preponderance of *married* general paralytics is not true of the incidence of general paralysis on the total population grouped in the second states as to marriage.

Occupation, Social and Pecuniary Position.—Military and naval life; prostitution; occupations exposing the workers to great heat and sweating, or to alternate heat and cold, or to alcoholic indulgence; as well as those which worry, irritate, occasion emotional strain or intellectual overwork; all favour the production of general paralysis.

The order in which classes of society are affected is, lower class males most, and then, decreasingly, upper class males, lower class females, upper class females.

Predisposing Mental Causes.—An ambitious, anxious life, or straining expectation, ill-regulated passion, moral shocks, chagrin, forced intellectual activity, predispose to general paralysis.

Cranial injury is a predisponent; and so are some conditions of *climate, locality, race, and urban life*. In the crowded cities of pushing peoples the disease grows rankly.

Exciting Causes.—The following efficient causes of over-excitation and exhaustion of the brain frequently bring on general paralysis, and each of the others is, in many cases, associated with over-drink. They are: Alcoholic excess; ex-

* Older observers, and more recently Ball and Régis, Copenhagen, Int. Med. Cong. vol. iii. p. 78.

† *L'Encéphale*, 1884, No. 6.

cessive and prolonged intellectual labour, with undue emotional tension; protracted painful emotional strain; exhausting physical labour; sexual excess. Diet and injury are also important factors.

Several of the chief exciting causes will now be taken separately, in detail.

Alcoholic Excess.—In our own cases alcohol, although perhaps rarely acting alone, has appeared to be the most frequent and efficacious cause of general paralysis.

Sexual Excess (excessive coition).—When concerned in the causation of general paralysis, excessive sexual congress almost invariably, we think, acts in alliance with other factors, and forms a part of that general sensuality and fastness which so often incur this disease; or else is allied with a sanguine temperament, and an over-active, protracted, and exhausting output of physical and mental energy.

Cerebro-spinal strain in a wide sense, and *mental strain or over-strain*, as stated by us many years ago,* is the great pathological factor of general paralysis (see Pathology). Under this head we particularly consider the so-called

Mental or Moral Causes.—The time of life at which general paralysis occurs is especially the age of ambition, pecuniary speculation, daring attempts to secure fame, wealth, power, and social position; the age of excessive and protracted intellectual labour done under emotional strain, of anxious and sustained strenuous efforts to provide for the family; the age in which excessive physical labour is often undertaken, which, like the intellectual labour, may be sustained by too liberal potations; and which, like it also, is no longer counteracted by the elasticity of youth, or by its restfulness after fatigue. Consequently, it is the age most liable to chagrin, disappointments, or sudden beggary, and at which the projects of life may fail and crumble away, and its fire die out.

Influences such as these, acting upon persons whose nervous systems have lost the elasticity of youth, whose blood and blood-vessels, perhaps, are further impaired by the effects of alcohol, whose naturally hyperæsthetic brains have been exhausted by irritable reaction to every strong impression, bring about hyperæmia, and a slow irritative form of degeneration or inflammation, in the supreme centres of the organ of mind. If to these factors alcoholic excess is added, their efficiency is doubled.

Severe intellectual work carried on too protractedly and monotonously, and es-

pecially when carried out by a worried worker in a mental atmosphere of vexation, annoyance, anxiety, may alone produce general paralysis. It is the long-continued dogged work, excessive in amount, lacking in variety, and trenching upon the hours of sleep, or making sleep uneasy, that kills; and especially if associated with emotional uneasiness and perturbation.

Diet.—Some important effects, promoting the production of general paralysis, are probably due to food, whether by direct action upon the brain and cord; or through hæmatic, renal, and cardio-vascular alterations.

Exhausting physical work can conduce to general paralysis only when it monopolises the whole being; and especially if alcohol is resorted to as a fillip.

Cranial injuries, brain contusion, brain concussion, insolation, and syphilis, are, all of them, important in the ætiology of general paralysis.

Lead and tobacco, and other intoxication; exposure to great furnace-heat, sleeping in hot places after meals, fevers, acute inflammation, protracted and severe neuralgia, suppressed excretions or discharges, have all been alleged causes of general paralysis, and may assist in connection with other factors. Arthritis (rheumatism) has been alleged* to be the principal cause in the production of general paralysis.

With the press of population into towns and cities, the increasing relative fewness of our rural populace, the tension of modern and diffused activity and debauchery, the decrease of leisure and deliberateness, there can be little doubt that general paralysis is increasing.

Morbid Anatomy (naked eye).—The calvaria is sometimes increased in thickness, or in density, or is osteophytic or of worm-eaten appearance. The dura is often more or less thickened, congested, unduly adherent to calvaria, or rarely to pial arachnoid, the walls and sheaths if its vessels are often thick; in one-fifth, on parts of its inner surface are rusty stains and delicate films. In about 4 per cent. is marked hæmatoma of the meninges, and about another 4 per cent. have recent blood or clot in the sub-dural space, usually at the base. In the same space is often a considerable amount of serous fluid. In chronic forms the dura may be flaccid anteriorly, or be pallid. The increased Pachionian bodies may adhere to the dura, or excavate hollows in the skull.

Brain.—In acute or early-dying cases,

* Lemoine, *Gaz. Méd. de Paris*, Aug. 17, 1889; cited *Amer. Journ. Insanity*, Oct. 1889, p. 291.

* "General Paralysis," 1st edit., 1880.

the brain may seem increased in volume and in vascularity, the sulci becoming narrowed, and the brain distending the dura. But almost invariably the brain comes under examination at a later period, and the following changes (not all present in every case) are variously grouped and associated. When removed, the brain is usually flaccid, and sinks somewhat under its own weight. The olfactory bulbs and tracts are usually wasted and softened; the optic nerves often atrophic, indurated, or softened.

The *arachnoid* is usually thickened, often tough, always more or less opacified, the opacity being patchy, and more obvious over the sulci and where it streams along the meningeal veins. Its outer surface is sometimes beset with minute pearly granulations; beneath it lies serum in the meshes of the pia and in the unduly rounded anfractuositities of the surface. Strong opaque arachnoid membrane often bridges the interpeduncular space. Cohesions are usual between the cerebral lobes, especially the anterior.

The *pia* is usually more or less thickened, coarse, locally or generally hyperæmic, and bathed in serosity or in lakelets of the same, except where adherent to the gyri. Yet it may be pale, or opaque, be the site of firm fibrous knotlets, bony plates, or a few patches of lymph or pus, or slight hæmorrhage, or the last may be between pia and cortex.

The *grey cortical substance of the cerebrum* is often diminished in consistence, at large or locally only; more rarely is it indurated locally, or even somewhat diffusely; is usually discoloured by hyperæmia of more or less irregular distribution, or may be pale; almost always is wasted in some regions, and perhaps more friable and opaque than normal; its strata are often indistinct. Cortical atrophy we found distinctly in all but 6 per cent.; on the whole, it affects frontal lobes most, parietal next.

Adhesion and Decortication.—Where adherent to the meninges, the superficial layers of the grey cortex are stripped off from the summits of the gyri—occasionally also from the declivities of the anfractuositities—along with the meninges when the latter are removed, thus leaving an irregularly eroded, and usually more or less reddish, appearance of the gyral surface, in patches. This is the most characteristic of the gross lesions of general paralysis. I have observed it in almost all cases, but not in all. The whole, or very nearly the whole, depth of grey cortex occasionally comes off in parts, leaving the anfractuous firm white cortex be-

neath. The ordinary adhesion and decortication most frequently affect the frontal, central, supra-marginal, temporal, and inner orbital, gyri.

The *medullary white substance of the cerebrum* is usually mottled, discoloured; sometimes diminished, at others increased, in consistence. When increased in consistence, it becomes white and often of sieve-like appearance, especially in the anterior part of the frontal lobes. In the more advanced cases there is decided atrophy of the brain, with increase of fluid in the ventricular, sub-arachnoid and subdural spaces; and the walls of the cerebral ventricles, beset with granulations, assume a pearly, sanded, jewelled appearance, which is observed particularly in the fourth ventricle; whose ependyma is also often thickened, opaque, or of swollen gelatinoid appearance, or congested, or tough. Wasting also affects the optostriate bodies, and often they are softish.

The pons and medulla oblongata are often somewhat atrophied, softened, less frequently indurated. The meninges covering them are frequently thick or adherent. The cerebellum is usually diminished in consistence, somewhat hyperæmic, its meninges somewhat opaque, and sometimes adherent to its cortex.

Spinal Cord.—Its tunics are most often thickened, less frequently adherent *inter se* and to the cord, hyperæmic, opaque, granulated; all these changes, as a rule, occurring chiefly on the posterior aspect, and here, in the arachnoid, are often numerous minute, irregular, hard, whitish, platelets; or the arachnoid may be thickened in patches, opaque, or semi-gelatinous in look, or strewn with minute pearly granulations. The pia is thickened, tough, or even delicately granulated; the meningeal, and especially dural, thickening may be local, confined to the part opposite to two or three vertebræ. Hyperæmia, granulated thickening, adhesion, firm-white-platelet formation—these are the successive steps in the change. Old spinal cystic hæmatoma, or recent meningeal clot, intra- or extra-dural, is occasionally observed. Atrophy of cord is usual; its softening and induration are both frequent. Grey degeneration in posterior and posterior-median columns, and of posterior spinal nerve-roots, thickened sheaths on posterior roots, sclerosis or grey degeneration of crossed and direct pyramidal tracts, or of these with the posterior columns; diffuse light sclerosis of cord, diffuse slight softening, "ring" myelitis, disseminated sclerosis of cord, circumscribed or extensive atrophy of grey matter of cord, each may occur.

Primary* degeneration may affect the pyramidal tracts, or these *plus* the lateral cerebellar, or these *plus* the posterior, ceasing to be spastic if the posterior root-zones are affected.

The loss of cerebral weight during general paralysis usually is from $1\frac{1}{2}$ to 3 or 5 oz. Av.; and, on the average, upwards of 4 fluid ounces of serosity and blood escape from the cranial cavity during removal and dissection of the brain.

The parts chiefly affected by wasting are cerebrum, bulb, and spinal cord.*

By unequal atrophy, frequently comes decided inequality in weight of the two cerebral hemispheres, which may even be to several ounces.

Body-wasting and *rigor mortis* are usual.

Heart.—Average weight, males, $10\frac{1}{2}$ oz. In about two-thirds unduly flabby, friable, or fatty. In 40 per cent. changes affect one or both of the valves on the left side; in 8 per cent. are changes in the valves on right side; and in 46 per cent. in coronary arteries. In 2 per cent. very marked dilatation; and in 8 per cent. very marked hypertrophy of heart, usually of left ventricle. Besides this, a comparatively slight hypertrophy is very frequent. Aortic arch disease in 80 per cent.

Lungs.—More or less pneumonia, usually lobular, hypostatic, and moderate or slight, in 58 per cent.; and in 20 per cent. recent pleurisy, mostly slight; and slight gangrene in 10 per cent.; bronchitis or bronchial congestion in 22 per cent.; pulmonary congestion in 64 per cent.; œdema in 26 per cent.; marked emphysema in 14 per cent.; induration, 14 per cent.; some hydrothorax, 12 per cent.; tubercle, caseous nodules, or cavities, 26 per cent.; traces of former cured tubercle, 12 per cent.; old pleuritic adhesions, 64 per cent.; &c.

Abdomen.—Occasionally peritonitis or old peritonitic adhesions. Patchy, passive hyperæmia, general or partial, of the gastro-intestinal mucosa, thickening or ulceration of that of colon, are conditions fairly frequent.

Liver.—Passive congestion of hepatic veins, occasional "nutmeg" appearance, discoloration, changes in consistence, slight cirrhosis, superficial scars, capsular thickening, old peri-hepatitic adhesions; each may be observed.

Spleen.—In nearly half too firm; in 9 per cent. unduly soft. Old peri-splenic adhesions, old cicatrices, old general capsular thickening, fibroid patch, unusually

notched condition, atrophy, hypertrophy, pallor, congestion, pigmentation of capsule—each may exist.

Kidneys.—Average weight 5.9 oz. per kidney. Granular surface in 18 per cent., capsule adherent in 34 per cent., ordinary cystic formation in 12 per cent.; one, two, or all of these three changes in 44 per cent., altogether. Some degree or form of sub-acute or acute nephritis in 14 per cent. Congestion in 18 per cent.; anæmia in 4 per cent.; embolism in 6 per cent.; suppuration or multiple small abscesses in 8 per cent.; pyelitis in 6 per cent.; &c.

Bladder and Prostate.—Cystitis, acute and chronic, or sub-mucous ecchymosis are not infrequent. D'Abundo* frequently found more or less chronic cystitis, in some cases giving rise to hypertrophy of bladder, often with dilatation, or with contraction; and in a number of examples there was also prostatic enlargement, which he was inclined to look upon as being secondary to cystitis, and connected with increase of prostatic sphincter-action and tendency to spasm.

Microscopical Changes.—*Acute General Paralysis*.—What has been termed a protoplasmic exudation, in various stages,† passing from blood-vessels to nerve-nuclei, and resembling a free spider-cell formation; molecular degeneration of ganglionic cells, nuclear proliferation of arterioles, or coarse neuroglia and protoplasmic exudations; thick-walled vessels, dilated, and beset with nuclei.

Chronic and Sub-acute General Paralysis.—The cerebral *pia* shows dilated thick-walled vessels, is beset with numerous nuclei; its vessels, in some cases, blending with the cortex by a rich nuclear growth and connections with their walls, and cellular formation in their adventitial sheaths and spaces. In the *pia* or its vessels may be fat-granules, or pigment clumps, or crystals, much fibrillar tissue, &c.

Cerebral Grey Cortex.—A. Blood-vessels. B. Neuroglia. C. Nerve-cells and fibres.

A. BLOOD-VESSELS.—(1) *Full of, and distended by, blood-corpuscles*; or opaque or yellow masses may be within the vessels. The vascular turgescence, and the next change, come first in the *pia* and cerebral cortex.

(2) *Increase of Nuclei on adventitial Wall of Blood-vessels*.—Sometimes this seems to be so extreme that the whole structure of the vessel-wall seems to be nuclear, and

* *La Psichiatria*, 1886; *Amer. Journ. Insanity*, Jan. 1887.

† Dr. E. Palmer, *Journ. Ment. Sci.*, April 1887, p. 22.

* Fürstner, Westphal, Zacher, Schultze.

† Dr. R. S. Stewart's "Thesis," 1886, gives some weights of such cords.

becomes transformed into a thick vitreous tube, which may become formless, fatty, or sclerotic. Or the muff of rounded bodies may be lymph-corpuscles, which eventually form stellate bodies and a network of fibres which invade and destroy the brain-substance. The two conditions may co-exist. All the walls may be affected.

A spiny, prickly state of vessel-wall may result from attachments of stellate-cell processes to it.

(3) *Collections in Lymph Spaces. Changes in Sheaths of minute Vessels.*—Collections of lymph-corpuscles may exist here, and may fill peri-cellular spaces. *Sub-adventitial space*:—dissecting aneurysm; dilatation, which may even be cyst-like; the widened spaces may contain lymph or blood-cells, or contents undergoing fusion, pigmentation, &c. *Peri-vascular space*:—dilatation, nuclei, corpuscles, pigment crystals.

(4) Deposits in, thickening, hypertrophy (as, e.g., of muscular coat), and other changes of vessel-walls are frequent; sclerotic, molecular, pigmentary, crystalline, fatty, atheromatous, or calcareous changes (see also *supra*).

(5) *Dilatation of blood-vessels*; irregular, fusiform, moniliform, spherical aneurysmal dilatation, or of adventitial sheath; dissecting aneurysm.

(6) *Tortuous, varicose, vessels*; chiefly capillaries.

(7) *Around vessels*: ecchymoses, or hæmacytes, or hæmatin crystals; protoplasmic exudation and nuclei.

(8) *Colloid degeneration* of arterioles and capillaries, with thick quasi-homogeneous shining translucent walls. Or, amyloid degeneration (?) of arterioles.

(9) *Obliteration or narrowing* of vessels may come from several of the preceding changes, acting singly or conjointly.

(10) *The new formation* of vessels observed, is variously stated to be (a) from buds or appendices on the walls of the old capillaries; or (b) from branches of spider-cells. Buchholtz* found it abundant, and existing independently of spider-cells.

(11) *Vacuoles* in brain-substance, especially in basal ganglia and pons, may represent expanded peri-vascular, or other spaces. *Cystoid degeneration* is a modification of the same, and occurring in the fronto-parietal cortex. And in

B. THE NEUROGLIA, (1) gaps may occur, supposed to be due to dilatation of normal lymph spaces, and of peri-vascular.

(2) *Hyperplasia and Hypertrophy of Neuroglia.*—Diffuse increase of neuroglia,

* *Centralblatt für Nervenheilkunde*, July 1, 1889, cited *Amer. Journ. Insanity*.

ending in sclerosis, is common; or an abundant primary nuclear proliferation in neuroglia; or a dense granular fibrillar condition. Hence, increased consistence and opacity; nuclei, fusiform and stellate cells; a firm network of fibres (external layer); or light diffuse sclerosis of brain, and glia transformed into compact thick brightish fibres; or a small disseminate ("islet") sclerosis, homogeneous at first, later fibrous. Or microscopic patches staining defectively, and of ground-glass or fibrous appearance. Or the grey plaques of Adler; or Simon's patchy vitreous degeneration of brain-cortex.

(3) *Increase of nuclei* of neuroglia. In *white of gyri*, increase of neuroglia corpuscles to a sclerous, closely woven, invading tissue.

(4) *Spider-cells.*—Sometimes termed "lymph connective elements." These occur chiefly in the most superficial and in the deepest layers of the cortex, and about the vessels to which they are attached; also basal ganglia, floor of third ventricle, and tuber cinereum. They assist in disintegrating the decaying nerve-cells; and in the outer stratum affect the layer of nerve-fibres from nerve-cell apices, and parallel to surface. They may transform into a fibrillar meshwork at last.

[*Mem.*—Concerning the last three conditions conjointly: some attribute these sclerotic and other changes to exudation of lymph-corpuscles, or of blastema, and the nuclear and cellular changes subsequently undergone by these.]

(5) Adhesion of pia to cortex.

(6) Ependymal (and arachnoidal) granulations, the former from connective-tissue overgrowth, or from ependymitis.

(7) Final atrophy of neuroglia and its so-called nuclei.

(8) Amyloid, or,

(9) Colloid, bodies (colloid degeneration of glia and finest vessels).

(10) Granule cells, or

(11) Schüle's bodies, or

(12) Free fat particles, in the interstitial substance.

C. NERVE-CELLS AND FIBRES OF CEREBRAL CORTEX, AND FIBRES OF SUBJACENT WHITE.

(1) *Nerve-cells.*—*Granular*, fuscous, fatty, pigmentary, granulo-fatty, *degenerations*, are, usually at least, degrees and phases of the same morbid process. The cells may become big and podgy, then shrink, and finally undergo disintegration.

(2) *Sclerosis* of nerve-cells.

(3) *Atrophy* of nerve-cells, in advanced cases.

(4) Phases of alteration in the *nuclei* of the nerve-cells.

(5) The *processes* of the nerve-cells may become corkscrewy; unduly thin or thick; rigid and glistening; or granular, fragile; or disintegrated, destroyed, invisible.

(6) *Swollen*, or hypertrophied nerve-cells. Normal giant cells may be erroneously mistaken for these latter.

(7) *Formation around Nerve-cells and Nerve-fibres*.—Besides conditions already mentioned, nerve-cells may be surrounded by increased connective nuclei, or encircled by fibrine bands, or encircled by vacuoles or dilated peri-cellular spaces.

(8) Calcification of nerve-cells; and

(9) Vacuoles in nerve-cells have been described by some.

(10) *Changes and Destruction of Nerve-fibres in Cortex*.—The nerve-fibres may become tortuous, irregular, or atrophied by the compression by interstitial tissue. Tuzek found more or less disappearance of the medullated nerve-fibres in local and definite portions of the cerebral cortex. The frontal lobes and anterior parts of parietal lobes are, or contain, the regions chiefly affected. Greppin* and Kronthalt† partially confirm this. Zacher‡ also confirms Tuzek in general terms; but not as to the extent, part most affected, regular increase, line of invasion, or clinical significance of the fibre wasting; and, moreover, finds it in many other forms of mental disease, often associated with marked changes in the blood-vessels, but especially with a history of drink. May not this alteration, then, be due to a form of alcoholic nerve-degeneration or neuritis, akin to alcoholic peripheral neuritis?

In the immediately sub-cortical medullary white cerebral substance Meschede found grey degeneration in patches and streaks, and Tuzek observed a like alteration between cortex and medulla, sometimes appearing as a grey stripe or streak, implicating tangential sub-cortical association fibres of Meynert; in some cases with foci bearing granule-spheres intercalated in that zone of degeneration, and corresponding to areas of cortical nerve-fibre disappearance. In the zone were interstitial increase and fibrosis, spider cells, disappearance of nerve-fibres.

Amyloid bodies and colloid bodies may be present from destructive changes in nerve-fibres and cells;§ and various other bodies also from axis-cylinder changes.

The white medullary cerebral substance, corpus callosum, fornix, septum lucidum, and crura cerebri, may exhibit changes

similar in nature to those in gyral white.

Opto-striate bodies.—Hyperæmia, œdema, vascular dilatation, or sclerotic change; perhaps fatty nerve-cells, and foci of hæmorrhage.

Cerebellum.—Sclerosis of Purkinje's cells, or fine fibrils on them, vascular changes, nuclear proliferation, &c. In the *pons Varolii* primary or secondary changes may be found.

Medulla oblongata.—Here are sclerosis, varying in degree, extent and position—ependymal changes—degeneration and atrophy of nerve-cells of bulbar nerve-nuclei—general or partial atrophy of the bulb.

In the cranial nerves, minute changes are frequent.

Sympathetic ganglia (especially the cervical) may show nuclear growth and formation of connective tissue and fat; pigmentation of nerve-cells; dilatation of blood-vessels.

Spinal Cord.—Posterior-column sclerosis; and, in the lateral column, granule-cell myelitis and connective-tissue growth, were long ago described. Softening of cord in tracts. Sclerosis of cord, sometimes in pyramidal tracts, sometimes in posterior column, sometimes in zones (in white or grey) towards posterior roots, sometimes in patches deep in posterior columns or about nerve-roots; or as light chronic, diffuse, general myelitis; or chiefly in the grey matter; or as chronic "ring" myelitis. Earlier changes are coarseness, molecular connective-tissue degeneration, abundant nuclear proliferation. The spinal nerve-cells may atrophy and degenerate. The anterior cornual cells may be granular, swollen, translucent; or swollen, hard, apolar. In the posterior columns, may be dilated thick-walled vessels, and rank growth of spider-cells, chiefly at posterior commissure, Goll's columns and sometimes posterior root-zone, or there may be neuro-myelitis.

Dr. I. W. Blackburn* reports a case with vessels of cord and bulb *less*, and nerve-cells *more*, affected than those of brain.

The *spinal nerves* often exhibit atrophy, connective tissue hyperplasia, &c., or present disintegration subjacent to pemphigus blebs.

Pathology.—There is not space to take up and discuss the debated questions as to the essential clinical nature, or the seat, of general paralysis, or if it is organic, as to the nature of the organic change.

Starting-point.—The locality in which the disease commences—its point of

* Twenty-second Report, Washington Asylum.

* *Archiv für Psychiatrie*, 1887, p. 587.

† *Neurologisches Centralblatt*, July 1887.

‡ *Archiv für Psychiatrie*, 1887, Bd. xviii.

§ "Cells," E. Palmer, *Journ. Ment. Sci.*, April 1887. Rokitansky long ago (for colloid).

departure—in the vast majority of cases appears to be the cerebral cortex, or the cortex and its investing meninges. Foci in the cortex are probably the starting-points.

Next to the brain, the most important parts affected in general paralysis are the medulla oblongata and spinal cord. The brain may be affected first, the cord and bulb subsequently, or these three may, practically, be attacked simultaneously; or the cord and bulb may be first affected, the brain subsequently; or the encephalon and its tunics alone may be affected, the cord being normal, and the bulb comparatively little affected.

When the brain is affected first, and the cord subsequently, organic changes of various regions of the cerebral cortex, under given conditions, lead to morbid alterations in definite tracts related to them, in the lower part of the nervous system, and the atrophy and disappearance of cerebral nerve-fibres in the cortex no doubt plays an important part here.

When brain and cord are simultaneously affected, the pathological cause and change are alike in both.

When the cord is affected before the brain, the spinal lesion may give rise to vaso-motor affection of encephalon, spinal and cerebral disease appearing successively; or there may be "general paralysis by propagation" in which latter condition the pathological lesions of general paralysis have been supposed to originate in an extension, to the cerebrum, of spinal lesion, or of cranial nerve disease. (Tabes dorsalis;* first, second, third, fifth, cranial nerve disease; insular, and other spinal, sclerosis.)

General Paralysis by Extension from the Vicinity. Extension by Contiguity.—It has been maintained that general paralysis may be produced by the inflammation occurring around cerebral tumours, foci of softening, or of hæmorrhage, or of sclerosis. Here, general paralysis may be termed a secondary malady, its symptoms and lesions being implanted on those of the preceding circumscribed disease.

Cerebral Congestion.—An extraordinarily important influence has been assigned to cerebral congestion in the causation and semeiology of general paralysis; and its relations to general paralysis have been much debated; as, also, has been the question whether the essential pathological change in general paralysis is principally and primarily of a more or less clearly inflammatory nature, or prin-

cipally and primarily of degenerative nature.

The Vaso-motor Theory of General Paralysis.—It has been held by some that the cervical sympathetic ganglia, undergoing sclerosis and fatty substitution, occasion disorders of the cerebral circulation, eventually leading to organic change; or that the encephalic vaso-motor centre, overwrought, permits vaso-paralysis in the brain, and exudation, in which new tissue forms and compresses the nervous elements.

Or, as Schüle holds, there is precocious involution, affecting an over-irritated functionally turgescient brain; with atrophy of brain, either coming as senile atrophic changes at the prime of life, or as congestion (hyperæmia), altered vessel-walls, disorder of exosmosis, constant diapedesis of cell-elements of the blood, inundation of sub-adventitial lymph-spaces, obstruction of various lymph-spaces, disordered nutrition ending in decay, degeneration, atrophy of nerve-cell and fibre apparatus, secondary glia change, and meningeal clouding and thickening. Important, therefore, are abnormal sympathetic and vaso-motor activity and susceptibility; vulnerability and ready change of vessel-walls, and of nervous elements. Obviously, brain-strain would easily act on bases such as these.

The disease often found in the *cervical sympathetic* is inadequate to explain the production of general paralysis. Inadequate, also, are the views that general paralysis is a *meningeal* disease; or that it is a *spinal* malady; or that it is a *simple neurosis*.

Inflammatory Doctrine of General Paralysis.—As to which part of the nervous system is first or mainly inflamed, the greatest possible variety of view has been put forward as to the part itself, and as to which of its histological elements has been first or chiefly affected. Also, as to the relations of the degenerative change (e.g., to congestion, or vessel change) if general paralysis be degenerative.

This diversity of view we may attribute to the vague and wide meaning applied to the word *inflammation*, and to the fact that degeneration actually occurs as an ultimate result of inflammation. And we may bring much discrepancy into harmony by maintaining that results of intra-cranial inflammation in general paralysis are practically of the nature of degeneration, and that a chronic inflammatory process may supervene in a brain or cord already damaged by a degenerative condition.

* Present writer, *Lancet*, May 1881; *Builen Brain*, April 1888.

Dr. William Leah* suggests extension of the morbid process in general paralysis by sympathetic inflammation, or a like process, the irritation following the direction of nervous impulses.

Whether in the acute or in the ordinary chronic cases of general paralysis, the aspect and state of the brain remind one strongly of acute and chronic forms, respectively, of Bright's disease of the kidney.

The changes found in the vessels and in the interstitial material are, as a rule, the more obvious; and yet, even here, the starting-point may be disordered action of, and changes in, nerve-cells and fibres; a slight change in the last-named working relatively enormous effects, and being of more actual importance than grosser changes wrought in the vessels and interstitial substance.

Speaking summarily, we may consider general paralysis as essentially commencing with cerebral hyperæmia, and ending with chronic cortical degenerative cerebritis, and, usually, embryonic and connective-tissue substitution. Other parts of the nervous system suffer, and the morbid action may even begin in them.

Pathological Physiology.—The course of general paralysis is probably somewhat as follows:—In the vast majority of cases the cerebral cortex is primarily affected, the meninges being usually more or less involved almost simultaneously. In many cases the morbid process apparently is most active, and at first active only, in circumscribed regions of the cerebral cortex, to which the pia-matral adhesions to the cortex often form a valuable index. In others the morbid action is more diffused. Usually the frontal and parietal gyri suffer most.

The morbid process is primarily set up by excessive, irregular, protracted, activity and strain of a larger or smaller number of the active functional elements, probably the ganglionic nerve-cells, of the cerebral cortex, which subserve the highest faculties of the organism. Of the most potent and frequent causes of general paralysis, each, in its own way, brings about excessive, irregular, protracted activity or strain of a larger or smaller number of the nerve-cells in question. For several reasons connected with the different modes of action of the several causes, and differences in organisation and pathological tendency of the several patients, the cortical regions or centres most severely affected vary in different cases.

* *Birmingham Medical Review*, June 1886.

Over-activity of the nerve-cells and their over-strain induce contemporaneous hyperæmia of the part, and this hyperæmia tends to keep in action its own causes. From frequent repetition of this condition, the normal tonus of the cerebral and meningeal arterioles is gradually lost. This prepares the way for sudden or protracted meningeal and cerebral hyperæmias, with their distension of the blood-vessels, circulatory impediment, irritative overgrowth of the nuclei of the vessel-walls, and of the neuroglia, and spider-cell growth; while others of the nuclei and cells, often termed embryoplastic, or their materials, are, perhaps, directly effused. Outwandering of leucocytes, and escape or extravasation of red blood-corpuscles, may further choke the parts. There is constant tendency to diffusion of all the morbid processes. In the meanwhile, the nerve-cells of the parts diseased, under the influence of morbid and excessive activity, have failed in their nutrition, are affected by the surrounding vascular and neuroglial changes; swell, become cloudy, and degenerate. Then, if a chronic mild adhesive form of inflammation, or irritative growth, sets in, fibrous effusion and neo-membrane or increased connective-tissue, assist in more completely involving the nerve-cells and in tying down the meninges to the cortex. These changes proceed in the usual degenerative course, and finally, as a result of them, we find the nerve-fibres wasting and disappearing; the processes of the nerve-cells cut off by the way; the cells themselves atrophic and degenerate; the blood-vessels of the cortex fibroid, fatty, calcareous, pigmented and misshapen, and the (formerly increased) neuroglia now atrophied.

Mental Centres.—*Dementia. Moral Failure.*—From disorder of the above kind affecting the centres concerned with the anatomical substrata of purely mental function, there are dementia and failure of moral and æsthetic culture. The chief question is, whether the dementia is due solely to the lesions and wasting of the frontal lobes, or of some other part, or of the cerebrum generally, or to meningeal conditions (pressure, &c.). The condition is chiefly due to the *frontal* lesion. According to some, the mental failure (as well as the early motor-association disorders) in general paralysis depends more immediately on wasting and disappearance of the sub-cortical association fibres of Meynert, in the frontal lobes, chiefly. In cases described as general paralysis without mental alienation, but with mental obtusion, Luys* found interstitial

* *L'Encéphale*, 1885, p. 558.

sclerosis about the brain-base (in parts alleged to be innervated from the cerebellum) invading optic thalami, and interfering with sensory impressions.

The *exalted or ambitious delirium*, like all the deliria in general paralysis, is largely dependent on vaso-motor disorders, and seems to occur, partly as a result of the unwonted and morbid disturbance of the ideational centres by hyperæmia, and partly as a result of morbid excitation of cortical motor centres, giving rise to the subjective impression of an enormous outflow of energy. With these conditions, and relative embarrassment of the centres highest in evolution, there may be excessive, discordant, uncontrolled activity of lower centres, and hence protracted or paroxysmal mental and motor excitement.

Hypochondriacal and melancholic symptoms may arise from temporary vaso-motor disturbance in certain parts of the encephalon, or from alterations in the constitution of the blood. The hypochondria may have its rootlets in some visceral or peripheral disease; in some disorder or loss of sensory function, whether of special or organic sense; or in spasm of hollow organs, or voluntary muscles. Vivid hallucinations of a distressing nature may call forth melancholic conceptions. Or the cerebral centres of motion and sensation in the brain, becoming exhausted and partially destroyed, in general paralysis, give origin to organic feelings mutilated and modified, to subtle impressions of constraint, environmental resistance, limitation of power, and prostration of energy, and thence to depressed feelings and thoughts.

We have often found *melancholic symptoms*, or *early dementia*, relatively predominant when the morbid changes chiefly affect the *left cerebral hemisphere* (and frequently its base more than usually); exalted delusion, gaiety and maniacal excitement, when they chiefly affect the *right*. There are exceptions.

Motor Centres.—*Ataxy and Paresis.*—If cortical motor centres are affected, motor intuitions and the motor element in ideas suffer, and psycho-motor symptoms are produced. The cortical lesion at first is an important factor, but later the bulbar and spinal lesions occasion marked symptoms.

Sensory Centres.—At first, ocular spectra, hallucinations and illusions arise, harmonising with the thoughts and feelings at the time. The intellectual centres also react upon the sensory; and sensory disorder may arise from the general excitement of cerebral circulation. Finally, the sensory functions fail and tend to

cease, as the brain and sensory nerves and nerve-expansions progressively deteriorate.

Speech.—(a) The *intellectual disorders* of speech in general paralysis, already described, are to be referred to the morbid states of the most highly evolved centres of the brain cortex.

(b) The disorders of inward speech, symbolic expression, or *diction*, described under a previous head, are of cerebro-cortical origin, and lesions between the cortex cerebri and medulla oblongata may assist.

(c) The *articulatory disorders* are largely of bulbar origin, but in the early stages, partly at least, of cerebro-cortical, or even of basal-gangliar origin.

From extreme cerebral changes, or grave degeneration of the nerves, nerve-nuclei, or muscles, of the articulatory mechanism, speech may finally be almost abolished.

The speech sums up the mental life in the individual, and in the race, and is the great point of blending for the intellectual acts of the greatest diversity, complexity, and delicacy, with the most complex and delicate of motor co-ordinations guided by sensory impressions; and from cortical disease and destruction, the highest and most delicate and latest acquired accomplishments fail first. Whence it comes that speech must be one of the very first to fail in general paralysis, a disease in which is loss of the highest intellectual and most delicate motor activities.

Gait, Paresis, Hemiplegia.—The spastic gait in general paralysis particularly attends sclerosis of the pyramidal spinal tracts.

The ataxic form of gait in general paralysis, when of well-marked characters, we attribute to the spinal lesions. But both early ataxy and early paresis in gait, and other functions, may depend upon cerebral disease; and the higher the animal is in the scale, the greater is the importance of the cerebral hemispheres in all that relates to station and locomotion.

In the later stages, paresis and paralysis arise from changes in brain-base, pons, bulb and cord.

Early temporary unilateral paresis depends on circulatory or exudative change, commonly with some form of "seizure." Later on, permanent and slowly augmenting hemiparesis usually depends on atrophy, chiefly affecting one cerebral hemisphere; or, rarely, on gross focal lesion.

To abnormal excitation, probably not strictly localised, of cortical centres may be referred the local twitches, spasms and convulsions, the general convulsions, and the general muscular agitation.

Thus, while primarily and principally a disease of the cerebral cortex, general paralysis has many symptoms arising from the rest of the cerebro-spinal nervous system, and from the sympathetic. (See Symptomatology).

Treatment.—I. *Prophylactic Treatment.*

(a) *Prevention of hereditary predisposition*, by avoidance of marriage with the neuropathic.

(b) *Prevention of individual predisposition*, by good education, both moral and intellectual, thus promoting that self-restraint and reaction with the complex environment which conserve energy, fitly direct the powers, and preclude excess and strain of all kinds.

(c) *Prevention of a threatening attack of general paralysis*, by removal from conditions under which precursory symptoms have arisen, and by a perfectly regular life, early hours, bathing, moderate and regular bodily exercise, avoiding ardent sun-heat; most gentle action of the intellectual and emotional faculties; the discontinuance of alcohol, tobacco, and coition; the keeping of the head cool, the feet warm, and the bowels freely open. Every source of anxiety, annoyance, or mortification should be most carefully avoided. Severe work, turmoil and striving must cease; nor must the occupation ever be resumed if it involves mental or physical strain.

II. *Treatment of Established General Paralysis.*

(a) *General management and nursing* hold the chief place. Removal from home is usually necessary. Tact and gentleness are required in the management; peace and mental rest should be sought by every means. The diet, at first, should be spare and light, the bowels should be kept in free action. Life in the open air, moderate exercise, and bathing, are serviceable. Later, the diet may be fuller and more generous. From walking alone to walking with assistance, from this to reclining in an easy chair, and thence to an air- or water-bed, is the usual process of declension. In the later stages, perfect cleanliness and the prevention of bed-sores are of paramount importance. Peptonised food by rectum, or feeding by the stomach-tube, should be employed if the patient is paralysed about the mouth and throat, or is comatose, as in the advanced paralytic, or in epileptiform, or apoplectiform, conditions. Inhalation of food and resulting lobular pneumonia are the great dangers here.

Bed-sores should be prevented, if possible, by perfect cleanliness, the use of a

water-bed, frequent changes of position; and, over the bony prominences, buffers of cotton-wool and the application of strong lead lotion. If bed-sores form, or if they are "acute" and not preventible, they should be treated on general principles, surgical or medical, as also must any urinary disorders which occur.

(b) *Medicinal Treatment.*—Counter-irritation, derivation, revulsion; by blisters, suppurants, cauteries, or setons, to the nape, spine or scalp, repeated as required; especially ung. antim. tart. to the shaven vertex, suppuration being subsequently maintained; or lin. iodi applied to successive halves of the spine;* venesection and leeching, cold to the head, general cold bath, prolonged baths at a comfortable temperature; sinapisms to lower limbs and hot pediluvia, purgatives and enemata, are all employed, according to circumstances, with more or less good effect. Some recommend electricity, some nitrate of silver, physostigma, ergot, digitalis, quinine, bromides. Potassium iodide more or less controls pain in the head and limbs, mental excitement, restlessness, epileptiform and apoplectiform seizures. Potassium iodide and mercury should always be given if the patient is syphilitic. For moderate excitement and cerebral hyperæmia, *veratrum viride* may be given to the robust. If the patient is in advanced dementia of the late stages, or if he is enfeebled, thin, or phthisical, remedies such as iron, quinine, and cod-liver oil, or the hypophosphites of lime, &c., are beneficial, or constant electrical current to head and spine.

For the *mental excitement*, purgatives, warm baths, with cold to head, bromides, *veratrum viride*, physostigma, ether spray to the head, digitalis, blistering the scalp, antifebrin, temporary seclusion if necessary, exercise in a large space. At night, if sleepless, bromides, or chloral, or a mixture of the two, sometimes with a warm bath, and cold to the head, or with the addition of opiates; or give sulphonal or paraldehyde.

For the *mental depression*, blistering the nape, baths, generous diet, are useful. But the most efficacious means is to procure gentle free action of the bowels and other viscera; and the same holds true when there is refusal of food.

For the *epileptiform seizures*, the lower bowel should be emptied by simple enema. If the patient can swallow safely, chloral hydrate, either alone or with potassic bromide, may be given by mouth, otherwise chloral hydrate by enema, the anus being

* Dr. Pritchard Davies, *Journ. Ment. Sci.*, Jan. 1886, p. 509.

plugged if necessary. In the status epilepticus the same treatment may be adopted, or inhalations of chloroform, and cold to the head. If the status is protracted, peptonised nutritive (milk) and stimulant enemata are necessary.

For the *apoplectiform seizures*, elevation of the head, free purgation, cold (ice, &c.) to the head, repeated daily if congestion is continuous, and with or without a prolonged warm bath to the rest of the body; the alkaline bromides and ergot in full doses. Here, and whenever cerebral congestion is marked, venesection, leeching, cupping of the nape, emetics, calomel, digitalis, quinine, cold baths, camphor enemata, have all been useful or extolled, and hot or mustard pediluvia may arrest an attack.

(c) *Surgical Treatment*.—Relief of intracranial fluid pressure has been sought by trephining the skull with or without incision of the dura.* As far as they go the results are stated to be encouraging.

For references to the literature of the subject up to 1886, the writer's work on "General Paralysis," 2nd edit., may be consulted. In this article are references to a number of articles since then.

W. JULIUS MICKLE.

GENETIC MONOMANIA. (See MONOMANIA, EROTIC.)

GEOPHAGIA, GEOPHAGISM ($\gamma\eta$, earth; $\phi\alpha\gamma\acute{\epsilon}\omega$, to eat). A name given to the practice of eating earth or dirt, whether regarded as a symptomatic or natural phenomenon. (Fr. *géophagie*; Ger. *Erdessen*.)

GEOPHAGIST, one who eats dirt.

GERMANY, History of the Insane in.—In former centuries the care of the insane was in Germany, as in all other civilised countries, and as it remains in uncivilised ones, very defective. The insane were left entirely to the care of their families, and their fate depended on their goodwill. The idea that disease was the cause of insanity, as Hippocrates and his successors had already recognised, had been lost. Although in the Middle Ages charity cared much for all invalids, and also for the insane, the monks never could get rid of the idea that insane people were possessed by the devil. Not until the eighteenth century, with the revival of science, was a better fate prepared for the insane. The encyclopædists spread new light, and numerous authors of all countries made the brain and mental derangements the object of their studies.

* Dr. Claye Shaw, *Brit. Med. Journ.*, Nov. 16, 1889; also, discussion, *Brit. Med. Assoc.*, Bournemouth, July 31, 1891; Dr. Batty Tuke, *ibid.*, Jan. 4, 1890.

We give the names of Klockhof, Arrigoni, Willis, Battie, Monro, Gaubius, Lorry, Morgagni, Whytt, Dufour, Le Camus, Nudow, de Haen, Cullen, Perfect, Mayer, Fawcett, Greding, Arnold, Weikard, De Beunie, Auenbrugger, Moritz, Gruner, Tissot, Guenz, Crichton, Fodéré, Rowley, Faulkner, Wagnitz, Iberti, Daquin, Ferriar, Pargeter, Reich, Clerc, Chiarugi, Haslam, Langermann, Pinel, Schmidt. The most prominent of those who, in Germany, exercised great influence through their investigations in anatomy, physiology, and psychology, are, Fr. Hoffmann, Stahl, Unzer, Zinn, Weikard, Loder, Sömmering, Blumenbach, Rudolphi, Stoll, Haller, Gall, Kant, Fichte, Leibnitz, Wolf, and E. Platner.

As for art and science, much has been done in different countries for the development of the science of mental disease, which was a necessary requisite for the civilisation of nations, and to which each contributed according to its individuality.

In Germany, considering the standpoint of the time, great care and medical treatment were given to the insane during the eighteenth century, although only in comparatively few instances.*

In Frankfort-on-the-Maine an asylum was built for the insane in 1785, surrounded with gardens, and situated in a quiet street; the rooms were high, and most of them looked out on the gardens. The maniacal were separated from the quiet insane. There was a dinner-hall, a hall for divine service, and workshops.

In Lübeck a house was built in 1788, in the main building of which the tranquil insane, and in the side wings of which the maniacal, were located.

In Brunswick Dr. Fricke began in 1793 in the St. Alexiushaus, the asylum of that country, to treat the insane humanely and medically, and on principle applied but rarely mechanical means of restraint. The physicians of that place had recognised insanity from about the middle of that century as a disease. They ordered mineral waters as a means of treatment, received fees for curing melancholiacs, and desired that quiet lunatics should have social intercourse with the inhabitants in the town.

As early as 1773, no lunatic was allowed to be brought to the asylum in Berlin without a medical certificate. In the same way, in 1784, Dr. Glawnig did not receive any patient into the asylum at Brieg who did not bring with him a medical report in regard to the methods of treatment that

* H. Laehr, "Gedenktage der Psychiatrie," Dritte Auflage, 1889.

had been employed. He had also caused a new asylum to be built there in 1784, although he did not succeed in getting its management into his hands. Neither did he succeed in his wish to have an asylum built in the country, that the patients might be employed there in agricultural work.

These examples, however, are only exceptions, which serve to show that, as in other countries, so also in Germany, intelligent and humane men endeavoured to mitigate the fate of the insane.

On the whole, lunatics were wandering about without any supervision, and if they were dangerous they were sent into the prisons, from which they were removed afterwards. It was reserved for the nineteenth century to act justly to the patients, and the labour of many men was necessary to gain secure ground for the foundation of the treatment of the insane.

The science of mental disease is closely connected with the development of medical science, and naturally so, because it is a part of it. Without the light of the science of medicine, mental science would not have been able to develop successfully.

For a long time Germany alone, by means of journals for mental science, had tried to attain this end. The preface of Reil's "Rhapsodien" is dated January 1, 1803. The first number of the "Magazin für die psychische Heilkunde," by Reil and Kayssler, appeared in 1805. Other journals, published before that time (from 1703), were edited by philosophers, anthropologists, and pedagogues. The above medical journal, however, took the standpoint of the natural-philosophical school, which for three decades governed medical thought in general; this journal also had soon to be given up, but Reil with immense energy began again, in 1808, in connection with Hoffbauer, to edit a journal, "Zeitschrift für Beförderung einer Kurmethode auf psychischem Wege." This also was soon relinquished.

Langermann, who had reformed the asylum at Bayreuth after a splendid plan, was in 1810 called to Berlin, to organise the provision for the insane in Prussia and to prepare the establishment of asylums.

In 1811 Pienitz opened the asylum on the Sonnenstein; in the same year Heinrich was created professor of mental science at the University of Leipsic, and an independent asylum was opened at Brake. Another asylum was opened in 1812 in Sorau. In 1813 Ruer was made director of the asylum at Marsberg, and in 1815 an asylum was opened at Eberbach.

As a natural consequence, a new journal was founded, and this time only physi-

cians contributed to it. It was edited by Nasse, and brought together disciples for the development of mental science.

In 1820 an asylum was opened at Schleswig, 1822 at Jena, 1823 at Hamburg, 1825 at Siegburg, 1826 at Heidelberg and at Düsseldorf, 1827 at Hildesheim, 1829 at Colditz, and 1830 at Sachsenberg and at Leubus.

Of all the alienists of that time Jacobi at Siegburg has, through his high moral personality, his indefatigable activity, his continuous counsel to observe nature, and through his literary works, in spite of their occasional heaviness of expression, exercised the greatest influence on the development of mental science in Germany. He was for many years regarded as the Nestor of German alienists, and gathered around him a great number of disciples. His close connection with the English alienists made his activity still more fruitful.*

The journal which Nasse edited had for eight years aroused and kept alive the interest in mental science. In 1819 Friedreich edited the "Magazin für die philosophische, medicinische und gerichtliche Seelenkunde," which was continued under various titles till 1838. The first journal, to which no others than directors of asylums, as Flemming, Jessen, Zeller, and Jacobi contributed, and which Nasse edited, was the "Zeitschrift für die Beurteilung und Heilung der krankhaften Seelenzustände." Unfortunately it was only continued a short time. In 1844 the "Allgemeine Zeitschrift für Psychiatrie," to which all German alienists contributed, was published under the editorship of Damerow, Flemming, and Roller. This journal has reported up to the present day on the development of the German institutions for the care of the insane, and through united strength has contributed much to this development.

Meantime, in Germany, since the third decade of this century, the philosophy of nature, which until then had governed medical science, had to give way to "exact medicine," which, through the strict observation of single facts, and through the introduction of natural science which at the same time had become more and more perfect, laid a new foundation along with a cautious use of speculation. To this the development of medical science in France during the third and fourth decade has contributed greatly. Those who were interested in mental science went to Esquirol and his

* He translated in 1822 S. Tuke's "Description of the Retreat (York); containing an account of its Origin and Progress, the Modes of Treatment and a Statement of Cases," 1813.

disciples and returned to Germany well instructed and full of enthusiasm. The interest for mental science had then penetrated in Germany into wider circles; Government favoured this new science; money was given to build new asylums, the conviction having gained ground that the castles and monasteries, which until then had been made hospitals, were no longer sufficient to meet the requirements of the insane.

It was a very favourable circumstance for the development of the care of the insane in Germany that the country was split up into many independent States. Consequently many centres could be formed, in which knowledge developed and spread further. A great number of eminent alienists were able to be in close connection with the different Governments and to arouse an interest in mental science; rivalry helped to create various forms of institutions for the care of the insane, which were adapted to the individual and local condition. But one common ideal was formed in Germany—to have small asylums, at the head of which was placed one responsible medical director, who had a comparatively large medical staff at his disposal. As a quiet situation out of town was required, and as the asylums were over-full in consequence of the reforms which had been introduced, horticulture and agriculture were drawn more and more into the circle of means of medical treatment. A satisfactory experiment on a larger scale was first made with a colony at Einum near Hildesheim in 1864; another was made in 1868 at Zschadras, near Colditz. Nowadays most asylums are connected with rural colonies. They are beginning now in public as well as in private asylums to place the patients under the care of single peasants in colonies near the asylum.

In consequence of this more equal development of mental science in Germany, the question of "non-restraint" was not such a powerful factor in reforms as in some other countries. The former division of Germany has brought rich fruit to the private asylums also, for the latter strive to contribute to the bettering of the fate of the insane, and, having an opportunity of freer action, are able sooner to make experiments with new methods of treatment.

It is one of the advantages of the treatment of the insane in Germany that public and private asylums work harmoniously together, and so-called sanatoriums for nervous diseases exist in great number to receive slighter cases and to prevent their transition into more serious forms.

In Germany a uniform law as regards the care of the insane besides the general laws and local regulations has not yet been established. The admission of patients is therefore not difficult. In some parts of Germany it is even made easier, with the result that an ever-increasing percentage of cures is effected with the possibility of admission at the right time. This has proved that even without greater restriction on admission no inconvenience is caused. It must be our endeavour to make the asylums as much like the hospitals as possible. The public, however, are still often frightened by the deprivation of liberty through the asylums, although it has been shown that there is no cause for that. Often the alienist is only able to confirm the opinion that a patient is insane, but occasionally he has to prove that in consequence of wrong diagnosis the patient has been improperly placed in the asylum, improperly even taking the slightest cases which the law allows to admit.

Great care has been taken at all the universities of Germany for the teaching of medical men, on whose co-operation so much depends for the timely sending of the patients to the asylum and for the removal of the prejudices of the public; they are clinically instructed; mental science has been admitted as a subject of examination, and it has been proposed to make it compulsory. The two universities at which an asylum has been as yet wanting, Giessen and Rostock, are now to make the necessary arrangements as regards buildings, &c. Whilst formerly the provincial asylums were made use of for clinical instruction, it is now preferred to build clinics destined for mental science, only near the other clinical establishments. Insight, money, and good intentions are no longer wanting, especially as in the greatest State of Germany, in Prussia, the care of the insane has been made compulsory for the provinces. As mental science had in 1844 its centre in the "Allgemeine Zeitung," so the endeavours to further the institutions for the insane in Germany found an essential support in 1860 in the association of all German alienists. This association considered and discussed all the reforms, and tried to realise results through articles and through influencing the Government. Local associations also were founded; two in Berlin, one in Hanover, Bonn, Breslau, and Karlsruhe respectively, which, as parts of the general association, have the same aim and are able to have frequent discussions.

Seven journals now make known in Germany the progress of mental science, which finds its principal support in 222

asylums, with 56,234 patients and 542 medical men.* (1891.) Besides this, on January 1, 1234 insane persons had been treated in the hospitals during the year.

H. LAEHR.

GESICHTSTAÜSCHUNG (Ger.). The German term for an optical illusion.

GHEEL.—The colony of Gheel represents the family system of making provision for the insane. Hence it deserves a special notice. This colony has been known since the seventeenth century. The legend of St. Dymphna attracted lunatics to Gheel from time immemorial, with a view to their cure by miraculous agency. The lunatics who arrived in the colony were dependent on the church called in Flemish "Ziekenkamer" (infirmiry), and were present at the religious services which should deliver them from their malady through the intercession of the Virgin Mary. When the patients did not recover their reason after a lapse of nine weeks, they were often left with the inhabitants to wait for the next festival of St. Dymphna.

This custom seems to be the origin of the system of family treatment, which has continued in Gheel for several centuries, but has undergone great modifications since it was subjected to lunacy law. Gheel numbers 5000 inhabitants, and comprises twenty-two outlying districts which augment the number to 6000. Gheel covers altogether more than 10,000 hectares. Long before the reform of Pinel, lunatics were here regarded as patients. Their number, which, in 1840, was only 717, is now above 1800.

Thirty years ago there was in Gheel nothing comparable to an asylum. Today an infirmary has been built on the plan of the Hospice Guislain (Ghent), which contains about sixty patients. All the lunatics coming to the colony are placed under observation for at least five days before they are placed in families. All patients who have been placed in families, if they become the subjects of serious intercurrent maladies, refuse to eat, become too excited, prove unmanageable, or give themselves up to alcoholic excesses, are sent to the infirmary. The caretakers may not receive more than two patients of the same sex; the indigent patients cost 84 centimes *per diem*—viz., 9 centimes for medicines, 1 centime for the physician, 58 centimes for food, 10 centimes for clothing, 2 centimes for bed, 1 centime for supervision, and 3 centimes for the cost of administration. Of

these 84 centimes, only 60 go to the caretaker. Those indigent patients who are in some degree dirty in their habits, cost 90 centimes, of which 70 centimes are for the caretaker, and the very dirty patients cost 99 centimes, of which 75 go to the caretaker.

The caretaker provides for each lunatic a room 2½ metres high, 2 metres in width, and 3 metres long. He also provides the food, which must be the same in quality as that of the household. Clothing is provided by the administration. Out of doors as well as indoors, the lunatic enjoys complete liberty. He helps in the house-work, assists in the preparation of the dinner, and looks after the children. Work is by no means compulsory, but the caretaker has an advantage in making the patient work, and the latter himself is benefited by doing so. The administration of the colony for the official surveillance consists of the *superior commission*, composed of the Governor of the Province, of the *Procureur du Roi* of the arrondissement, the Justice of the Peace of the canton, the Burgomaster of the commune, and of the physician appointed by the Government, and of the *permanent Committee of Inspection and Surveillance*, consisting of five members appointed by the Minister of Justice.

The nurses in the infirmary go out during the daytime into their appointed districts, visit the rooms of the patients, and have also, by night as by day, to satisfy themselves that the patients are looked after in accordance with the regulations.

The medical service is confided to five medical men—two head doctors and two assistants, under the direction of the zealous and devoted Dr. Peeters.

JULES MOREL.

[References.—The Cottage System and Gheel, by Dr. Sibbald, *Journ. of Ment. Sci.*, April 1861. Insane Colony of Gheel, by Dr. H. Stevens, *ibid.*, April 1858. Report on Gheel, by the Commission of the Paris Société médico-psychologique, Dec. 1861; *ibid.*, April, 1862. Dr. McIntosh on Gheel, *ibid.*, p. 14. On a Recent Visit to Gheel, by Dr. Hack Tuke, *ibid.*, Jan. 1886. The Colony of the Insane at Gheel, by Dr. Margaret A. Cleaves, *ibid.*, April 1891.]

GLOBUS HYSTERICUS (*globus*, a ball; *hysteria*, *q.v.*). Terms for the choking sensation as of a lump in the throat, felt by hysterical persons. The sensation usually begins about the epigastric region, or even in the lower part of the abdomen, and gradually rises into the throat so as to produce the choking feeling. It is probably caused by irregular spasmodic contractions of the œsophagus or the pharyngeal muscles. It is frequently observed as one of the immediate warnings

* H. Laehr, "Die Heil- und Pflegeanstalten für Psychisch-Kranke des Deutschen Sprachgebietes im Jahre 1890, mit Karte," Berl. 1891.

or auræ of a hysterical fit. Ewald regards it as the result of an abnormal irritation of the nerves of the mucous membrane of the œsophagus, or a visceral paralysis. Others, as Jolly, consider it to be a disturbance of the motor nerves with anti-peristalsis. (See Hysteria.) (Fr. *globe hysterique*; Ger. *hysterische Kugel*.)

GONYBATIA (*γόνυ*, the knee; *βατέω*, I tread). A name given to the act observed in some lunatics of progressing on the knees, instead of walking upright on the feet.

GOUT, INSANITY FROM. — The choleric irascibility of gouty persons, popular observation has long recognised, and it has been a frequent subject of dramatic humour.

The **mental effect** of ordinary gout was long since described by Sydenham. He says: "The mind suffers with the body, and which suffers most it is hard to say." He dwells on the loss of mental energy, the "susceptible and vacillating temper," the fear and anxiety, and adds: "Melancholia, so called, is pre-eminently the inseparable companion of gout."

Other medical writers have recorded the occurrence of neuralgias, hypochondriasis, epilepsy, and delirium from the same cause.

Dr. Russell Reynolds (*Brit. Med. Journ.* 1877) has summarised the mental and sensory disturbances in gouty states, enumerating sleeplessness, restlessness, failure of power of attention and of memory, alternation of excitement and depression, intense melancholy, suicidal thoughts, sounds and even voices in ears, also unilateral pain in head, parietal or occipital, of a grinding character, and increased by movement; vertigo, tinnitus aurium, mental absences, with feelings of numbness, creeping, tingling, deadness, coldness and heat of the limbs, hemiplegic and paraplegic in distribution. Sir A. Clark (*Journ. Ment. Sci.* 1880) confirms these observations, and alludes to the "morning misery" in gout and to the alternation of gout and neuralgias.

A disorder capable of producing such various nervous symptoms must assuredly possess great power of vitiating the nutritive processes of even the highest nervous centres, and that it does so is borne out by the records of many medical observers.

Berthier (*Ann. Med. Psch.*, 1869) collected twenty-two cases of various types of mental disorder ascribed to gout, reported by different authors, and in a discussion, on a paper on this subject by the writer, at the International Medical Congress (1881), the existence of such cases

was accepted with the criticism that they generally occurred in predisposed persons; a criticism that would apply to most exciting causes of disease.

The resulting form of mental disorder in any given case would seem to depend indeed on the degree of neurotic predisposition, and the condition of bodily health, as well as on the intensity and duration of the toxic action.

Varied association of these conditions produces almost every possible degree of cerebral malnutrition and mental disorder. Cases recorded and others observed by the writer include examples of simple, delusional, suicidal melancholia, as well as others of the "attonita" form, stupor, mania, mania with epilepsy, hallucinations, as well as simple and paralytic dementia.

These various forms of mental disorder may be found associated with undeveloped wandering, anomalous gout; in association with, or alternating with, attacks of this disease; also resulting from retrocession, or in connection with that condition which Garrod has described as suppressed gout.

Undeveloped gout as a cause of mental disorder, has been recognised by Sir J. C. Browne ("Trans. Inter. Med. Congress," 1881, vol. iii. p. 641), who stated that he "connected many cases of melancholia attonita in young girls of feeble circulation, with gout."

The writer also observed a case of simple melancholia in a middle-aged man, where convalescence was associated with attacks of gout, from which he had not previously suffered. Although hereditarily neurotic, there was a want of other exciting cause which this event supplied, his convalescence was materially hastened by treatment directed against his gouty diathesis, and his mental improvement corresponded with his gouty attacks.

These cases are less frequent than the other classes, and are less easy of demonstration, but so careful an observer as Sir A. Clark (*Journ. Ment. Sci.*, 1880, p. 345) expresses the opinion that women at the climacteric period are especially liable to anomalous nervous affections, and even melancholia, from gouty tendencies.

Cases occurring in association with **active gout** are much more obvious, the most interesting being those in which the arthritic and mental disorders alternate.

Le Paulmier (quoted by Berthier) records an example of the former kind, of a "grand-mangeur," who had long suffered from unrelieved gout, who developed hallucinations that he believed to be real—believing that he saw persons who spoke to him, &c. These hallucinations disap-

peared on the application of epispastics to the feet, but returned after a time. A cautery on each leg cured him completely.

A similar case came under the writer's observation in a middle-aged man whose gout had become chronic and subacute from the habit of taking opium to relieve the pain. In this case illusions and hallucinations were predominant, most striking among which were flashes of light, which he attributed to external influences. He did not completely recover until after severe acute attacks of gout.

In another case the gout and the mental disorder co-existed.

This man had long suffered from gout, and from some mental depression to which he was predisposed hereditarily, but had been able to continue to conduct his business.

On a certain Saturday, he made up his books, as if retiring from business, became excited on Sunday, and on the Monday sank into a state of profound melancholia, of the quiescent form; having a delusion of impending danger, rarely speaking or moving except at the instigation of others. He suffered from sub-acute attacks of gout during the whole period of his mental affection, which lasted for six years. Recovery followed more acute joint affection, and general improvement of bodily health.

Of the alternating class, Dagonet ("Traité des Maladies Mentales," 1862, p. 211) records that one of his patients suffered alternately from attacks of gout and mental disorder.

P. Berthier ("De la Folie diathésique," 1859) records the case of a widow predisposed by prolonged anxiety, who suffered from gouty pains in the smaller joints of the hands. These gradually ceased, and were followed by a violent attack of mania: as this passed away the pains recurred.

A. Mathey records the case of a gentleman, "living in all kinds of excess," who, after having been free from gout for nearly two years, fell into a profound state of melancholia.

In the course of his disorder he had two attacks of gout at an interval of two months, and during these he possessed completely the use of his reason.

Trousseau ("New Syd. Soc. Trans.," vol. iv. p. 384) described the case of a man æt. 40, of good constitution, who had been subject to gout from the age of 25, who began to take anti-gout medicines regularly on the coming on of his attacks. After some years, he became quite maniacal at these times, and as the gout became chronic and atonic, he became brutish and

demented, without paralysis, and died in a state of coma.

Retrocession of gout is a well recognised cause of apoplexy, but it may also result in mania, with or without epileptiform seizures, and in other mental disturbance.

Dr. Garrod quotes the case of a gentleman, aged 70, in whom the sudden disappearance of gout from one wrist, from exposure to cold, was followed by mental disorder for three weeks, which ceased on the re-appearance of the gout.

Also the case of a clergyman, æt. 60, a great martyr to gout, who, when slowly recovering from a moderately acute attack in the feet, went to his church to officiate on a very cold day; after the service, he took train to London, where he was found a few days later quite insane. He recovered.

Dr. Garrod quotes also another similar case in a gentleman æt. 80.

Cases of delirium and mania from retrocedent gout are numerous recorded, and generally alluded to by writers on this subject.

One of the most striking cases of retrocession coming under the writer's observation, was that of a slaughterman, in the prime of life and of excellent physique, free from hereditary neurotic predisposition.

His hours of work were very prolonged, and he was a strenuous worker. Temperate as regards alcohol, but his diet was almost exclusively of flesh. He was allowed as much meat as he cared to eat, and consumed large quantities at each meal.

He developed most acute gout, and becoming delirious, from the pain and the sedatives given to relieve it, rushed out of doors on a cold night in his shirt.

The gout disappeared from the joints, and he had a severe attack of convulsions, followed by a maniacal condition.

On his coming under care he had great exaltation and some motor inco-ordination; his state resembling, for a few days, an early stage of general paralysis with exaltation.

Under treatment his symptoms rapidly disappeared, and he was soon quite well.

The cases of "**suppressed**" (Garrod) gout are probably more common.

One of the most striking in the writer's experience was that of a man, who, after protracted gout, for which he had taken large quantities of medicine, of his own prescribing, as out-patient, and lastly in-patient, of a London hospital, developed delusions founded on hallucinations; in a short time he became stuporous, and was sent to Hanwell. He was extremely weak on admission, and had not spoken for

weeks. Hot-air baths were given with great benefit; during one of the earliest he spoke for the first time; under their use he soon developed severe acute attacks of gout, and convalesced rapidly.

Another case was that of a man-cook, non-neurotic and in the prime of life, who, after having suffered from gout for a prolonged period, ceased to have joint attacks, and became profoundly melancholic with a fixed delusion. His mental disorder had existed for some years before he came under treatment; this failed to re-develop his gouty attacks, except in a very slight form, and without mental benefit.

The cases of gout resulting in mental disorder in men at the climacteric, alluded to by Sir J. C. Browne (*Journ. Ment. Sci.*, 1881, p. 471) are probably of this class.

Ætiology.—In considering the ætiological action, gout, *per se*, appears rarely a cause of mental disorder except in retrocession; ordinarily there is some neurotic predisposition, strengthened by other conditions—such as puberty, the climacteric, or senility; the abuse of drugs to cure or alleviate the attacks is another element of causation; the abuse of purgatives, colchicum, opium, and alkalies thus helping; the association of habits of excess in food and alcohol are also recorded as elements in causation; and in one recorded case lead poisoning contributed (*Journ. Ment. Sci.*, 1880).

Cases resulting from atonic, retrocedent, and suppressed gout are principally recorded in men, but Sir J. C. Browne and Sir A. Clark attribute melancholia in women to the undeveloped form.

The resulting insanity has no special or distinctive mental character, and the only physical characteristics which have attracted the notice of the writer are an excessive fulness and prominence of the eyes (probably from venous congestion), and in the melancholic cases a depth of pigmentation rare in men. Melancholia would seem to be the most frequent form of disorder.

The **diagnosis** of gouty insanity rests on the family and personal history of the patient, the presence of tophaceous deposits, and of excess of uric acid in the blood and in the serum of blisters, as well as by the alternation with, or alleviation of, the mental disorders by the occurrence of joint affection.

The **prognosis** is usually favourable, except in cases where the mental disorder has developed very gradually or has existed for a long period without appropriate treatment, or in which there is associated disease of the kidneys or liver.

The **pathological results** of gouty

brain disease have yet to be recorded. Trousseau observed in one case infiltration of the membranes, serous effusion and some adhesions; in retrocession, apopleciform congestion is found, and dilated atheromatous arteries in senile cases.

In regard to its **physio-pathology**, the manifold symptoms of nervous disorders described by Russell Reynolds, and confirmed by Sir A. Clark and others, from their sudden *variability* would seem to point specially to vaso-motor disturbances (irritation) of the nervous areas involved.

This is probably the condition in undeveloped gout, in which the toxæmia is insufficient to produce acute attacks of gout. In minute lead toxæmia the higher nervous tissues are often affected, while the lower escape, and the writer has suggested that this is due to the enormously greater proportion of blood (and consequently of toxic matter) going to the former. The same explanation would apply to these gouty cases, and it is a point for observation whether these various local affections are not determined by functional activity and consequent hyper-toxæmia.

In the suppressed gout, on the other hand, there would seem to be an excessive accumulation of gouty poison in the blood, due to the exhaustion or paralysis of the vaso-motor irritability. In the stupor case quoted in this paper the explosion of gouty attacks, on the removal of some of the poison by pseudo-therapeusis, would seem to point to absolute vaso-motor paralysis, the normal irritability manifesting itself, on the reduction of the toxæmia, by very severe and extensive joint affection. In the chronic atonic gout there is probably exhaustion of vaso-motor activity, while in retrocedent gout the irritation of the cerebral vaso-motor system by the retained toxic matters would seem to be extreme.

The degenerative action on the nervous structures would appear to be very slight; in lead toxæmia of even a few days duration, irrecoverable degeneration occurs; on the contrary, in gouty toxæmia, of the most extreme and protracted character (as in the quoted case of melancholia attonita lasting six years) complete recovery is still possible; actual nerve defect when it occurs in gout being probably secondary to vascular changes.

The **prophylaxis** of mental disorder in gouty cases should rest on the stringent treatment of all habits of living, and the avoidance of excessive use of drugs in cases neurotic, either by inherent or by acquired predisposition, especially if already manifesting any symptoms of disturbance of the nervous centres.

The **treatment** of cerebral disorder dependent on gouty toxæmia, must primarily be eliminative if the theory of its action approximates to truth, and in practice this is found successful.

Hydro-therapeusis is the most efficacious means of elimination; the hot air bath or vapour baths in their various forms and modifications being most beneficial; their earliest result in retrocedent and suppressed gout being the re-development of the joint affection in an acute form.

The warm pack is also useful in all forms.

In the retrocedent form mustard pediluvia, sinapisms and even blisters of the extremities have been found beneficial. The actual cautery, used successfully in one of the quoted cases, is probably too heroic to be recommended.

In the suppressed form counter-irritation about the head in a stuporous case did harm, while an accidental vesication of the legs in the same case was beneficial.

In this form too alkalis are, from the writer's experience, specially prejudicial.

In the stuporous states absolute rest in bed is indicated at the outset, and the diet should be very nutritious.

Beyond this the treatment is that of the ordinary forms of gout, which is too well known to require repetition in this connection.

HENRY RAYNER.

GRAND MAL (Fr.). A fully developed epileptic seizure.

GRANDE HYSTERIE (Fr.). A term for hystero-epilepsy.

GRANDE NEVROSE (Fr.). A term for epilepsy.

GRAMMATICAL FAULTS OF SPEECH.—The faulty use of words for the expression of ideas. The faults resulting from imperfect education should be distinguished from those made by educated persons, or from a bad habit, a desire for originality, or an absurd fancy, and also from those which result from disease, and from a complication of amnesia, aphasia, and paraphasia, which are accompanied by grave disturbance of the intellect, particularly by weakness of the intellectual powers, or which constitute the expression of an insane caprice. The chief grammatical faults of speech may be included under the heads of interruption in the flow of words, imperfect grammatical diction or grammatical akataphasia, articles, pronouns, or auxiliary verbs being omitted, strong verbs being conjugated with a weak inflection, &c.

GRAPHOLOGY (γράφω, I write; λόγος, a study). A study or description of hand-

writing in relation to the changes which occur in some disease, such as general paralysis, &c.

GRAVES' DISEASE. (See EXOPHTHALMIC GOITRE.)

GREAT BRITAIN, Provision for the Insane in.—The last Report of the English Lunacy Board (1891) gives the latest available returns of the insane population of the various classes of asylums in England and Wales on the 1st of January, 1891. The corresponding Blue Book issued by the Scotch Board is the source from which we have obtained like particulars in regard to Scotland.

England and Wales.—In *County and Borough Asylums*: *Private*, M. 424, F. 553, Total 977; *Pauper*, M. 23,928, F. 29,463, Total 53,391; *Criminal*, M. 68, F. 15, Total 83. Grand totals: M. 24,420, F. 30,031, Total 54,451.

In *Registered Hospitals*: *Private*, M. 1785, F. 1661, Total 3446; *Pauper*, M. 147, F. 94, Total 241; *Criminal*, M. 1, F. 0, Total 1. Grand total: M. 1933, F. 1755, Total 3688.

In *Metropolitan Licensed Houses*: *Private*, M. 825, F. 819, Total 1644; *Pauper*, M. 337, F. 547, Total 884. Grand total: M. 1162, F. 1366, Total 2528.

In *Provincial Licensed Houses*: *Private*, M. 600, F. 815, Total 1415; *Pauper*, M. 258, F. 307, Total 565; *Criminal*, M. 3, F. 0, Total 3. Grand total: M. 861, F. 1122, Total 1983.

In *Naval and Military Asylums*: *Private*, M. 262, F. 16, total 278.

In *Criminal Asylum* (Broadmoor): M. 474, F. 150, total 624.

The Act of Parliament 23 & 24 Vict. c. 75 made provision for the custody and care of criminal lunatics. This was in 1860, and the now well-known and well-managed State Criminal Asylum of Broadmoor, in Berkshire, arose from it, and was opened in 1863. Broadmoor has been fortunate in its superintendents, but its superintendents have not been fortunate in Broadmoor, they having received serious injury at the hands of those over whom they have had to exercise authority. Some statistics will be found in the article by Dr. Orange entitled *PROCEDURE*, and also in the "History of the Insane in the British Isles," pp. 265-284.

The foregoing statistics include the inmates of idiot asylums. It may be added as regards Earlswood that the foundation-stone of this important institution at Redhill, Surrey, was laid June 16, 1852, by Prince Albert, and it was opened by him in 1855. Its foundation was largely due to the exertions of the Rev. Andrew Reed, D.D. It was built at a cost of

£30,000. The number of inmates receiving instruction and care amounts to M. 431, F. 191, Total 622 (January 1, 1891).

Essex Hall, Colchester, was originally a branch of an idiot asylum at Highgate, and subsequently became (in 1859) the institution for the eastern counties. Mr. Millard was for many years the much-esteemed superintendent. A similar institution for the western counties was opened at Star Cross, near Exeter, in 1864. For the northern counties an asylum for idiots and imbeciles was erected at Lancaster in 1864. At Knowle (Warwick) a very small institution, the Dorridge Grove Asylum, was opened in 1866. For idiots and imbeciles of the pauper class within the Metropolitan boundary, a school was opened at Darenth in 1879 under the Act 30 Vict. c. 6. It is governed by the Metropolitan Asylums Board, subject to the Local Government Board.

In *Ordinary Workhouses*: M. 4865, F. 6394, Total 11,259.

In *Metropolitan District Asylums* (legally Workhouses): M. 2684, F. 3047, Total 5731.

Private Single Patients: M. 182, F. 258, Total 440.

Out-door Patients: M. 2319, F. 3494, Total 5813.

Thus the total number of private patients amounts to 8200; paupers 77,884; criminals 711; making a grand total of M. 39,162, F. 47,633, total 86,795.

We have in the "Historical Sketch of the Insane" (p. 1) rapidly surveyed the progress made in the humane treatment of the insane in England, noticing the reforms introduced into the management of the insane institutions designed for their care, more especially the York Retreat, the Lincoln Lunatic Hospital and the Middlesex County Asylum, Hanwell.

Successive Acts of Parliament were passed with the intention of protecting the insane from abuse, and the sane from improper sequestration. For a description of the existing Lunacy Laws in England and Wales (see LUNACY ACT, 1890).

Scotland.—In *Royal and District Asylums*.—*Private*, M. 727, F. 800, Total 1527; *Pauper*, M. 2732, F. 2857, Total 5589. Grand total, M. 3459, F. 3657, Total 7116.

In *Private Asylums*.—*Private*, M. 44, F. 108, Total 152.

In *Parochial Asylums*—*i.e.*, Lunatic Wards of Poorhouses with unrestricted Licences.—M. 708, F. 809, Total, 1517.

Lunatic Wards of Poorhouses with

restricted Licences, M. 444, F. 438, Total 882.

In *Private Dwellings*.—*Private*, M. 40, F. 84, Total 124; *Pauper*, M. 993, F. 1496, Total 2489. Grand total, M. 1033, F. 1580, Total 2613.

At the same date there were in the *Lunatic Department of General Prisons*, M. 42, F. 15, Total 57.

In *Training Schools*, M. 164, F. 94, Total, 258, of whom 142 were private and 116 pauper patients; making a grand total, M. 5894, F. 6701, Total 12,595.

In Scotland, a benevolent scheme for making suitable provision for the insane on a charitable foundation was projected by Dr. Duncan in 1792. It was approved by the Edinburgh Colleges of Physicians and Surgeons, but the necessary means were not forthcoming. It was not until fourteen years afterwards (1806) that an Act of Parliament appropriated money for the building of an asylum in Edinburgh. In the following year (1807) a Royal Charter was obtained, and an institution was opened in 1813, providing for three classes—paupers, an intermediate grade, and a third division in which the patient had a servant to attend him. Thus originated the justly celebrated Edinburgh Royal Asylum, at Morningside. Other admirable chartered asylums have for long conferred a great boon on the country. As in other countries the insane and idiots were in many instances greatly neglected and were hidden away in outhouses, or at best locked up in gaols and poorhouses. For the rescue of these from their miserable lot, the credit is mainly due to the remarkable action taken by an American lady, Miss Dix, who in 1855 "invaded" Scotland and afterwards reported to the Home Secretary what she had discovered. The result was the appointment of a Royal Commission, April 3, 1855, which reported two years afterwards; confirming but too fully the melancholy picture which Miss Dix had drawn.

It is stated that the details furnished to the Commission "form only a part of the picture of misery; and had we been able to extend our investigation, it would, we are convinced, have assumed a much darker shade."

The legislation which resulted from this report, warmly supported as it was by Mr. Ellice, the member for St. Andrews, produced beneficent reforms in the condition of the insane in Scotland, a Board of Commissioners in Lunacy was appointed, and the subsequent history of asylums of the insane in Scotland is one highly creditable to the Board, Committees, and the

Medical Superintendents of Institutions for the Insane (*see* SCOTTISH LUNACY LAW). THE EDITOR.

[References.—Chapters in the History of the Insane in the British Isles, by D. Haek Tuke, M.D., 1882. Annual Reports of the Commissioners in Lunacy for England and Wales, and for Scotland.]

GREECE, Insanity in Ancient.—From the remotest Grecian antiquity we know that insanity under the form of epilepsy and melancholia often existed epidemically.

Ajax was tormented by the Furies, and committed suicide. Hercules also was subject to furious mania. Œdipus tore out his eyes and found in the forest of the *Eumenides* (benevolent witches) protection and reconciliation with the gods. Orestes also was persecuted by the Furies. Upon the melancholy Bellerophon weighed the curse of the gods (Homer).

In the earliest antiquity of Greek fable, besides the Furies and the *Eumenides*, there were, in substitution of our demons, the fauns, satyrs, and Silenus.

Magic, with a thin veil of pagan witchcraft, we find personified in the oracles; the genius of evil is represented by Medea, who was the cause of all the evil which befel the race of Jason, whom she had aided in the Argonautic expedition, and for whose desertion she wished to revenge herself.

Among the first endemics or epidemics—their division being impossible to define—we have the insanity of Proetus's daughters, the Proetides, who abhorred matrimony, and often fled into the woods yelling like wild beasts.

This affection closely resembles lycanthropy, and was cured by Melampus, who employed hellebore, music and dancing.

We find psychosis complicated with hallucinations and impulses in the Grecian Olympian games, their triumphs, and their consultations of the oracles.

The bacchanalian *fêtes* which were celebrated in the month of *ελαφβολιών*, degenerated into orgies, that subsequently became deplorable scenes of bloodshed. The Greek bacchantes were huntresses, shod in buskin, and were called *τιαδε*, which in Greek means to be in a state of excitement, *μευαδε*, or furibond. During the feasts the endemic dancing of the bacchanalians became epidemic, a real *coreomania*, as it did in Rome.

The mysterious rites of the *Tesmofovie* and the *Eleusinie* carry us to a true endemic worthy of a nation at the epoch of its decadence, and even in the midst of Grecian civilisation.

These were most secret and severe sects, with rites so concealed that no records

have come to us, and they remain to this day involved in mystery.

Human sacrifices do not seem to have been extraneous to their proceedings, which appear to have somewhat resembled the symbolic mysteries of the Druids.

Certain schools, as that of the cynics, partake of the morbid decay of a historical period, and even stoicism, which despises family, smells strongly of moral insanity, notwithstanding it constituted one of the most important branches of Socrates' philosophy.

The fall of Grecian civilisation was marked by a great epidemic of unnatural crimes, analogous to those that flourished in Sodom and Gomorrah. (*See* HISTORICAL SKETCH OF THE INSANE, p. 1, and EPIDEMIC INSANITY.)

A. TAMBURINI.

S. TONNINI.

GRIEF (Old Fr. *gref*; heavy, sad, from Lat. *gravis*, heavy, grave). Pain of mind, trouble or sorrow for something that is past. The feeling experienced by the mind owing to the loss or removal of an object, the attainment of which had afforded gratification.

GRILLENKRANKHEIT (Ger.). An equivalent for hypochondriasis.

GRÖSSENWAHN, GRÖSSENWAHNSINN. Terms for megalomania.

GRUBELSUCHT. (*See* DOUBT, INSANITY OF).

GUARDIAN.—A *non compos* cannot be guardian of any other person, for "one who cannot govern himself will be unable to manage another and his concerns" (Shelf, *Lunacy*, 493, *Ex parte Brydges*, H. T. 1791, 2 Fonbl. Eq. 249, n.).

A. WOOD RENTON.

GUILD OF FRIENDS OF THE INFIRM IN MIND.

Objects of Guild.—This Association was founded in 1871, with the following objects:—

- (1) Intercessory prayer.
- (2) Visits to friendless patients in asylums in conformity with the regulations of the establishment.
- (3) Correspondence by post.
- (4) Seeking situations for convalescents.
- (5) Promoting convalescent homes for temporary rest after mental illness.
- (6) Maintaining friendly intercourse with discharged patients.
- (7) Recommending efficient attendants.
- (8) Furthering in any other way the interests of the infirm in mind.

Practically the Association's work has been carried on, as regards personal visits and postal communication—in one large lunatic asylum—one of the largest in the Kingdom.

Personal Visits.—For many years friends in the neighbourhood have paid personal visits to patients recommended to them as persons likely to be benefited by sympathy and kindly attentions.

It is believed that much pleasure and comfort have been conferred in this way on many more or less friendless inmates, by the welcome visits, friendly conversation, and considerate gifts of benevolent neighbours, who, in some cases, have even invited patients to their houses.

Postal Communication.—Many ladies at a distance have held postal communication with patients introduced to their notice, sending letters, magazines, flowers, postage stamps, small money-orders, Christmas and other cards, &c. No trifling gratification has thus been afforded in the course of many years; many of these correspondents were entire strangers to the asylum and its inmates before entering into this charitable relationship.

"After-care."—The "after-care" of mental convalescents, both as regards temporary "homes," pecuniary aid, employment, &c., has been undertaken by another Society;* but the "Guild" still recognises objects (4), (5), and (6) as obligations of "after-care" to be reckoned among its duties.

Conditions of Membership.—The Guild's conditions of membership are:—(1) "Communion with the Church of England"; and (2) "Willingness to promote the objects of the Association by prayer and help, according to opportunity." Its aid is of course available for *all* persons within the sphere of its

* The Association for the "After-Care" of Poor and Friendless Female Convalescents on leaving Asylums for the Insane. (See AFTER-CARE.)

work, irrespective of their religious denomination.

President.—The president of the Society is the Bishop of London.

Associates.—About 440 associates have joined.

No Subscription.—There is no subscription. The payment of one shilling on entrance is the only pecuniary requirement.

Any inquiries will be gladly answered by Rev. H. Hawkins, Chaplain's House, Colney Hatch, N. H. HAWKINS.

GUSTATORY ANÆSTHESIA (*gusto*; ἀ, neg.; ἀίσθησις). Impairment or loss of the sense of taste, which may be complete or incomplete; total in regard to its intensity or partial, and in regard to its area, circumscribed or diffused. When partial it is frequently a symptom of hysteria.

GUSTATORY HYPERÆSTHESIA (*gusto*, I taste; ὑπερ, excessive; ἀίσθησις, sensation). A condition of the special sense of taste in which there is increased delicacy, so that very small quantities of sapid substances may be perceived. It is an occasional symptom of hysteria.

GUSTATORY PARÆSTHESIE (*gusto*; παραισθάνομαι, I misperceive, am mistaken). Peculiar subjective sensations of taste. They are most commonly described as sourish or bitter, sweet or insipid, but may be very offensive. The affection is an occasional symptom of hysteria. It is frequent in combination with other sensory hallucinations and delusions of poison.

GYNÆCOMANIA, GYNÆMANIA (γυνή, a woman; μανία, madness). A term for a species of insanity consisting in an excessive desire for women. (Fr. *gynecomanie*.)

H

HABIT-SPASM, HABIT CHOREA.—Clonic spasm of a muscle or group of muscles at first under control of the will, usually commencing with some trick or gesture.

HABITUAL DRUNKARDS, LEGISLATION AFFECTING.—Till about the middle of the present century the habitual drunkard, although *voluntarius dæmon*, was left unaffected by lunacy legislation. Public opinion was, however, gradually aroused and educated, the pathological aspect of inebriety was insisted upon, and separate legis-

lation for inebriates was demanded.* A provision was introduced into one of the

* One of the pioneers of this movement, according to Professor Gairdner ("Drunkennes and Dip-somania," reprinted from the *Birmingham Medical Review* for Jan. 1890), was the late Sir Robert Christison. Cf. his lecture "On Some of the Medico-legal Relations of Intemperance," delivered before the Royal College of Surgeons on March 19, 1858, and published by A. & C. Black in 1861.

Dr. Kerr ("Inebriety," second edition, 344-5) says that "the movement on behalf of legislation for habitual drunkards appears to have been first proposed in this country in 1830, by the late Dr. R. B. Grindrod, in his popular prize essay 'Bacchus.'"

Lunacy Acts (29 & 30 Vict. c. 51, s. 15) to the effect that an inebriate might voluntarily apply at a lunatic asylum for treatment. "This provision," observes Prof. Gairdner, "though well intended, has for obvious reasons done no good. Whether an habitual drunkard is ever insane or not, to ask him to declare himself to be so was practically to court defeat, as every one must know who has had to do with this unfortunate class at all."* In 1870, the late Dr. Donald Dalrymple, M.P., introduced a Bill upon the subject into the House of Commons. This measure provided for the admission into retreats of habitual drunkards (1) on their own written declaration that they were such and that they desired to be admitted, and (2) by the order of a magistrate, on the request of a near relative, friend, or guardian, or on the certificate of two duly qualified medical practitioners and the affidavit or declaration of a credible witness. The only immediate result of Dr. Dalrymple's Bill was the appointment of a Select Committee of the House of Commons in 1872 to inquire into the medico-legal relations of habitual drunkenness. Among the members of the committee were Dr. Dalrymple, as chairman, Dr. Lyon Playfair, Sir Harcourt Johnstone, Mr. Samuelson, Mr. Akroyd, Lord Claud Hamilton; and among the witnesses examined were the late Dr. Anstie, the late Dr. Skae, Dr. Crichton Browne, Dr. Arthur Mitchell, governors and officers of prisons, chief constables, lawyers, and heads of inebriate asylums in this country and in America.

The following are a few paragraphs from the report of this committee :

"That there is entire concurrence of all the witnesses in the absolute inadequacy of existing laws to check drunkenness, whether casual or constant, rendering it desirable that fresh legislation on the subject should take place, and that the laws should be made more simple, uniform, and stringent.

"That small fines and short imprisonments are proved to be useless, as well by the testimony of competent witnesses as by the fact that the same individual is convicted over and over again to even more than 100 times.

"That occasional drunkenness may, and very frequently does, become confirmed and habitual, and soon passes into the condition of a disease uncontrolled by the individual, unless indeed some extraneous influence, either punitive or curative, is brought into play.

"That self-control is suspended or anni-

* "Drunkenness and Dipsomania," *ubi sup.*

hilated moral obligations are disregarded, the decencies of private and the duties of public life are alike set at naught, and individuals obey only an overwhelming craving for stimulant to which everything is sacrificed.

"That the absence of all power to check the downward course of a drunkard, and the urgent necessity of providing it, has been dwelt upon by nearly every witness; and the legal control of an habitual inebriate, either in a reformatory or in a private dwelling, is recommended, in the belief that many cases of death resulting from intoxication, including suicides and homicides, may be thus prevented.

"That this power is obtained easily, at moderate cost, and free from the danger of abuse and undue infringement of personal liberty, has been stated in evidence by quotations from American and Canadian statutes, as well as by the witnesses from America."

A second Bill, based upon and embodying the recommendations of the Committee of 1872, was brought before the House of Commons by Dr. Dalrymple, but it was not proceeded with owing to the death of its promoter. In 1877 Dr. Cameron, M.P. for Glasgow, brought forward a measure, which was drafted upon the same lines as the Dalrymple Bill of 1870, except that (1) the propriety of compulsory committal was to be decided by a jury instead of by a magistrate, and (2) any one, without lawful authority, taking into a retreat, or giving to any person detained therein, any intoxicating liquor, or sedative, or stimulant drug should be liable to punishment. The compulsory clauses of this Bill were violently opposed and ultimately had to be abandoned. In this emasculated form, the measure passed the House of Commons, was piloted by Lord Shaftesbury through the House of Lords, and took its place on the statute-book as The Habitual Drunkards Act, 1879. An analysis of its provisions follows:—

(1) **Definition.**—The term "habitual drunkard" means "a person who, not being amenable to any jurisdiction in lunacy, is, notwithstanding, by reason of habitual intemperate drinking of intoxicating liquor, at times dangerous to himself, or herself, or to others, or is incapable of managing himself or herself, and his or her affairs" (sec. 3, sub-s. 3, b).

(2) **Establishment and Regulation of Retreats.**—The proper "local authority"*

* *Viz.*, for *English counties*, the justices of the peace in General or Quarter Sessions assembled; for *English boroughs*, the justices of the peace in Special Sessions assembled; for *Scotch counties*, the County Council (Local Government [Scotland] Act 1889, sec. 11, sub-s. 5 (1); for *Scotch boroughs*,

may, upon application* by any person or persons, not being already licensed to keep a house for the reception of lunatics, grant to such person or persons a licence † to keep a retreat for the control and care of habitual drunkards for any period not exceeding thirteen months, and may from time to time revoke or renew such licence. One at least of the persons to whom a licence is granted must reside in the retreat, and be responsible for its management. Unless the name of the licensee or of one of the licensees is on the Medical Register, a duly qualified medical man must be employed as medical attendant. In the event of the licensee becoming incapable, from sickness or otherwise, of keeping the retreat, the local authority may grant a written transfer of the licence to another person.

Any habitual drunkard desirous of being admitted into a retreat may make application for admission to the licensee thereof. Such application ‡ must state the time during which the applicant undertakes to remain in the retreat, and must be accompanied by the statutory declaration of two persons that the applicant is an habitual drunkard within the meaning of the Act. The signature of the applicant must be attested by *two justices of the peace* § (Inebriates Act, 1888, sec. 4.), who have satisfied themselves that the applicant is an habitual drunkard within the meaning of the Act, and have explained to him the effect of his application, and such justices shall state in writing, and as part of their attestation, that the applicant understood the effect of his application for admission and his reception into the retreat.

The inebriate, having been duly committed to the retreat, must remain, and may legally be detained there, till the expiration of the term mentioned in his application, and not exceeding a period of twelve calendar months. Several statutory qualifications of this statement must, however, be noted:—(1) The inebriate may at any time, upon the request in writing of the licensee, be discharged by the provost and magistrates; for *Irish counties*, the justices of the peace in Quarter Sessions; for *Irish boroughs having a recorder*, the recorder.—First Schedule to Act of 1879.

* See Form of Application in the Second Schedule to the Act, Form No. 1.

† Form No. 2, Second Schedule.

‡ Form No. 3, Second Schedule.

§ The Act of 1879 required (sec. 10) the attestation of two justices *having jurisdiction under the Summary Jurisdiction Act, in the place where the matter requiring the cognisance of a justice arises*; but the clause in italics is now repealed (Act of 1888, s. 4), and the attestation may be that of any two justices.

a justice of the peace, if it shall appear to such justice to be reasonable and proper.

(2) If any retreat becomes unfit for the habitation of any person detained there, or otherwise unsuitable for its purpose, the local authority or the Inspector of Retreats (appointed under the Act*) may order his discharge. In such a case the licensee must with all practicable speed send by post a notice of the removal of the inebriate to the person by whom the last payment on his behalf was made, or to one at least of the persons signing the statutory declaration which accompanied his application. (3) The Secretary of State may at any time, on the recommendation of the Inspector or Assistant Inspector of Retreats, or in his own discretion, order the discharge of any person detained in any retreat. (4) A judge of the high court, on an application *ex parte* at chambers, or a county court judge within whose district the retreat is situated, may at any time by order under his hand authorise and direct any person to visit and examine a person detained in a retreat under the Act, and to inquire into and report on any matters which such judge may think fit in relation to the person so detained. The judge, on receiving such report, may order the person so detained to be discharged. (5) On the request of a licensee, a justice of the peace may, by a written order, permit an habitual drunkard detained under the Act to reside with any trustworthy and respectable person named in the order for a definite time for the benefit of his health. Such a licence cannot be granted for more than two months, but may be renewed from time to time before its expiration for further periods not exceeding two months each. The time during which an habitual drunkard is thus absent from a retreat on leave is deemed to be part of the time of his detention in such retreat, unless the leave of absence is forfeited by the drunkard escaping from the person in whose charge he is placed or refusing to be restrained from drinking intoxicating liquors.

(3) **Offences under the Act.**—(a) Any licensee neglecting or permitting to be neglected any habitual drunkard under his care, or failing to comply with or contravening any of the provisions of the Act, is liable on summary conviction † to

* The Inspector of Retreats is appointed by the Secretary of State, and is required to visit, either personally or by an assistant inspector, every retreat at least twice a year, and to present, in the month of January in each year, a report to the Secretary of State.

† The provisions for appeal against such convictions are too technical to be profitably noticed

a penalty not exceeding £20, or, at the discretion of the Court, to be imprisoned for any term not exceeding three months, with or without hard labour. (b) The same liability is incurred by any person who illtreats, or, being an officer or servant employed in a retreat, wilfully neglects any habitual drunkard detained there, or induces or knowingly assists an habitual drunkard detained in a retreat to escape therefrom, or without the authority of the licensee or the medical officer (proof whereof shall lie on the accused) brings into any retreat, or without the authority of the medical officer, except in case of urgent necessity, gives or supplies to any person detained therein any intoxicating liquor, or sedative narcotic, or stimulant drug or preparation. (c) An habitual drunkard who, while detained in a retreat, wilfully neglects or refuses to conform to the rules thereof, is liable on summary conviction to a penalty not exceeding £5, or at the discretion of the Court to be imprisoned for any period not exceeding seven days; and at the expiration of such imprisonment, if any, he shall be brought back to the retreat, and in reckoning the period of his detention, the time during which he was imprisoned shall be excluded from computation.*

(4) **Proceedings on the Death of Persons detained under the Act.**—In case of the death of any person detained under the Act, the principal medical attendant of the retreat is required to draw up and sign a statement of the cause of death with the name of any person present thereat, and copies of such statement duly certified in writing by the licensee are transmitted to (a) the coroner and the registrar of births and deaths for the district, (b) the clerk of the local authority, and (c) the person by whom the last payment was made for the deceased, or one at least of the persons signing the statutory declaration which accompanied the application for his admittance.

Every medical attendant who shall neglect or omit to draw up and sign such statement as aforesaid, and every licensee neglecting or omitting to certify and transmit such statement as aforesaid, shall be liable to the punishment specified above (3, a).

(5) **Miscellaneous Provisions.**—Any action against any person for anything here. They will be found in secs. 30, 35 & 36 of the Act of 1879.

* If an habitual drunkard escape from detention under the Act, a warrant for his apprehension will, upon the sworn information of the person charged with his custody, be issued by a justice of the peace having jurisdiction in the district where the retreat is situated, or the habitual drunkard is found.

done in pursuance or execution or intended execution of the Act *must* be brought within two years after the act or omission complained of; and one month's notice in writing of such action, and of the cause thereof, *must*, before its commencement, be given to the defendant.

Persons who hold estates, other than ecclesiastical benefices subject to any condition of residence, do not incur any forfeiture through being detained in any retreat.

The Inebriates Act, 1888, made the Habitual Drunkards Act, 1879, permanent,* enabled a licensee to appoint a deputy to act for him during his temporary absence, and introduced the alteration, above mentioned, in the requirements of the Act of 1879 to the attesting justices.

No further legislation as to inebriates has yet taken place in this country. A Bill, applicable to Scotland, and intended to be called the Restorative Homes (Scotland) Act, has, however, been drafted by Mr. Charles Morton, M.P., some time Crown Agent for Scotland, has been submitted to the Marquis of Lothian, Secretary of State for Scotland, and has, in the main, received the emphatic approval of the medical profession.† It would, of course, be premature to discuss the provisions of this measure here. It may not, however, be out of place to state generally the character of the alterations which it proposes. (1) The jurisdiction over habitual drunkards is to be vested in the Commissioners of Lunacy and the district lunacy boards. (2) The sheriff may, on the application of a near relative or friend of the patient, or of a magistrate in the public interest, make an order for his compulsory detention in a home. (3) The period of detention is to be for twelve months at least, but power is granted to secure an early discharge, should this seem necessary or desirable.

A. WOOD RENTON.

HABROMANIA (*ἀβρός*, light, gay; *μανία*, madness). A term for any form of insanity in which the patient is gay, cheerful, or merry.

HÆMATOMA AURIS (*ἄμαρῶ*, I turn into blood; *auris*, the ear). **Synonyms:** Othæmatoma, Auricular hæmatoma, Insane ear, Bloody tumour of ear, Perichondritis auriculæ.

Definition.—An effusion of blood or of bloody serum between the cartilage of the ear and its perichondrium, occurring in certain forms of insanity and sometimes among the sane.

* The Act of 1879 was limited to expire in ten years from its enactment.

† Cf. *Brit. Med. Journ.*, Aug. 3, 1889, p. 273; *Edin. Med. Journ.*, June and July, 1889; Gairdner's "Drunkemess and Dipsomania," *ubi sup.*

Diagnosis. — Hæmatoma auris is usually found in its fully developed and recent condition as a smooth ovoid swelling, of a bright red or livid colour and tense appearance, generally tender to the touch, with or without local increase of temperature, occupying the anterior or outer surface of one or both auricles, and confined to the cartilaginous portions of the ear, namely the helix, the scaphoid fossa of the helix, the antihelix, the triangular fossa of the antihelix, the concha, the antitragus and tragus. It varies in size from half a walnut to a hen's egg, occupying most frequently the helix—its most usual starting-point, and to which it is frequently limited—the concha, or the triangular fossa, and, as Gruber has shown, it may even originate in the cartilaginous portion of the meatus auditorius externus. It may remain limited to the region of the auricle in which it originated, or extend and involve the whole of the anterior surface of the ear, obliterating its superficial configuration and blocking up the meatus, presenting a painful livid plum-shaped tumour projecting forwards and outwards from the side of the head. In its development certain premonitory local signs of importance have been noticed: there is a marked antecedent swelling and turgescence of one or both ears, the face becomes suffused and the conjunctivæ frequently injected; this local determination of blood is, however, not invariably present, and may occur days before the advent of the effusion. There are no premonitory constitutional evidences, such as rigors or febrile symptoms, to mark the commencement of the affection. Its mode of onset is as a rule sudden, the patient may have gone to bed with the ears perfectly normal, and have a fully developed othæmatoma in the morning; the pain during its growth is slight, but increases with the increase of tension, the period of time occupied for the attainment of the maximum size varying from a few hours to several days. There is no doubt that the left ear is the one most commonly affected, statistics give ample proof of the fact, and that in the bilateral development of the affection the left auricle is as a rule primarily implicated. To the touch the swelling is superficially tense, but on deep pressure fluctuation can be detected, or the circumference of the auricle may be indurated while the centre is resilient; the skin is shining, distended, smooth and even, or presents outlines of the ridges of the partially obliterated elevations and hollows of the normal auricle. The tumour is invariably confined to the outer or concave surface of

the pinna, the cranial aspect retaining its normal appearance in the early stages, though subsequently it participates in the shrinkage that occurs. The lobule of the ear is never affected, the lesion being entirely limited to the cartilaginous portions of the auricle. The local increase of temperature is observed only during the developmental stage of the tumour, and the swelling may appear, attain its maximum, and recede without any superficial signs of hyperæmia. During the period of maximum tension the thin skin on the anterior surface of the ear may crack or rupture, sero-sanguineous fluid oozing through the apertures, and the cyst may refill, the auricle shrinking in the same manner as when the cyst contents are partially absorbed. In from one to three weeks after the tumour reaches its full development it gradually begins to shrink, the skin loses its glossy tense appearance, and presents numerous fine wrinkles due to the excessive stretching of the cuticle, while the tenderness to touch disappears, and at the same time the tumour will afford a feeling of crepitation, a phenomenon absent from the stage of development. The subsequent conditions vary, the shrinking may continue, leaving the ear a puckered, wrinkled and misshapen knot, sometimes elastic, sometimes with hard, bony, nodule-like masses in its substance. The degree of shrinkage is dependent directly on the size of the tumour, being also greater in those cases where by rupture or incision the contents have been evacuated. The tumour again may rupture, the whole contents of the cyst being turned out, and this may refill as in the stage of complete development, or being emptied heal and shrink. The contents, on the other hand, may, when rupture does not occur, remain unabsorbed, a hard solid swelling resulting, or the effusion may be completely absorbed, a slight wrinkling only marking the lesion. The most usual result is rupture with shrinkage of the emptied cyst when the tumour is of any size. Whenever hæmatoma auris has, however, once occurred, the ear never regains its normal or original shape and configuration. The shrinkage is sometimes considerable, but rarely exceeds about one-sixth of the size of the ear in its normal condition. On comparing the clinical points presented by othæmatomata as occurring in the insane with those that are found in the sane, the following marked differences will be noted. The tumour in the latter is more tender to the touch, lacks the livid plum-blue discoloration of the insane ear, rarely ruptures spontaneously, and the absorp-

tion in the majority of cases is more complete, so that the wrinkling and deformity are less marked. An anomalous condition of hæmatoma has been recorded, a peculiar variety due in all probability to a chronic perichondritis, in which a small quantity of effusion only occurs, which does not disappear, persisting without any further deformity.

As to the forms of insanity in which hæmatoma auris is found, Franz Fischer maintains that it shows no preference for any one type, an opinion in accordance with the commonly accepted views as to its ætiology, but its extremely frequent occurrence in general paralysis of the insane, and its marked absence from the primary stage of secondary dementia point to a different conclusion. Epilepsy, when associated with maniacal attacks, acute mania, chronic mania, and melancholia, especially where there are exacerbations of excitement or activity, are, in addition to general paralysis, the special species of insanity which favour othæmatomata. Cobbold and Grabham give instances of its occurrence in idiots, and Langdon Down says that it occurs in 3.6 per cent. of male congenital idiots, but that it is seldom found in idiocy developing during post-uterine life. The majority of idiots who are othæmatomatous are epileptics, and the left ear is, as in the case of the insane, the one principally or primarily affected. In all cases, then, it will be observed that hæmatomata appear in those forms of insanity in which the mental excitement, be it maniacal or melancholic, runs high for any length of time, and the tumour may commence soon or years after the onset of the mental symptoms. Its occurrence among the sane is much more frequent than most writers have asserted. It is found in professional pugilists, wrestlers, Rugby-union football players, in gymnasts, in habitual drunkards, or any others who are prone to receive severe injury in the aural region when the skin there is in a hyperæmic state, a condition as will be seen later on of extreme importance in the causation of the affection. It is found more frequently among men than women, and some observers, notably Yeats, have held that it occurs less frequently now than formerly. Associated with the development of othæmatomata there are usually to be found functional or organic disturbances of various organs—of the nose (chronic nasal catarrh), of the teeth (erosion of the enamel and dental caries), of the utero-vaginal tract (chronic uterine or vaginal leucorrhœa), &c.—but whether these are accidental, or concomitant phenomena de-

pendent on a general or sympathetic disturbance, is an open question. There is no deafness, except the mechanical deafness caused by the meatus being occasionally involved, no diminution in the acuteness of hearing when the deformity is fully established, a fact perhaps of interest to physiologists, and no premonitory or associated tinnitus. The predisposing factors to the occurrence of these tumours are age, since it usually but not invariably occurs after adolescence, insanity of the forms mentioned, especially where long-standing vasomotor disturbances are followed by paroxysms of excitement, cachexia, and physical impairment, especially that due to alcoholic excess, and sex. The diagnosis must be made from erysipelas affecting the ear alone (where the implication of both the convex and concave surfaces of the pinna, with the presence of physical signs such as rigors, elevation of temperature, &c., are sufficient distinguishing symptoms), from burns (where the history, implication of the lobule and other objective signs will help to differentiate), from tubercular syphilis (where the history, the peculiar character and painlessness of the swelling and its location will assist us), nævi (where the history, painlessness, position, absence of tension, and persistence will mark the difference), idiopathic perichondritis auriculæ (where the diffused character of the swelling, its persistence without any resultant deformity will help in the diagnosis) and from the auricular hypertrophy met with in idiots (where the history, uniformity of the swelling, with absence of puckering and deformity will help to distinguish). The bilateral occurrence is most frequent in cases of general paralysis, and there undoubtedly points to a centric influence, a fact which will be discussed in dealing with the ætiology of this affection.

As to **prognosis**, this for the tumour itself is favourable, the disease as a rule running its course without complication, and leaving the deformed auricle only as the result of its presence. Occasionally an acute phlegmonous inflammation may complicate the progress of the case, and result in chondro-necrosis, but this is rare. For the mental affections in which it occurs it has by some authorities been regarded as a symptom of serious import, but instances are not unknown or infrequent in which patients have been discharged from asylums fully recovered with the typical puckered and shrunken auricle. Of necessity, its occurrence in such affections as general paralysis betokens a probable rapid mental and phy-

sical deterioration, but in acute mania and melancholia such deductions are by no means warrantable. In forming a prognosis, then, due attention must be paid to the causation of the hæmatoma. When due to traumatic causes the prognosis is far more favourable than when a centric cause alone has apparently originated the lesion.

Pathology.—The pathology of othæmatoma is essentially that of any other form of hæmatoma, with the difference that it occurs in a locality bounded posteriorly by a resisting and dense cartilaginous wall, and anteriorly by a thin distensible structure, the perichondrium and dermic tissues. The blood effusion occurs from the minute vessels in the perichondrium, and is poured into the sub-perichondrial space, a fact primarily demonstrated by Foville, for after rupture of the cyst if the orifice be maintained patent, a serous or sero-purulent discharge continues for a long time, which discharge must of necessity have its origin in a secreting surface (the perichondrium), and would not result from the breaking down of the connective tissue by effused blood. Preceding the occurrence of the effusion, a hyperæmic condition of the perichondrial vessels is usually observed, the auricular tissues undergo a softening process (Virchow), or chondromatic degeneration (L. Meyer). The peculiar colour of othæmatoma of the insane is explained by the rapid tissue-degeneration so common especially in general paralysis, the serum containing large quantities of leucocytes and broken-down red blood-corpuscles. The recent blood when examined is not changed in character, thus disproving the idea of the causation of the tumour by some blood dyscrasia, as has been maintained by Mercé and others, and coagulates readily when evacuated. When undisturbed, the effused blood undergoes changes exactly similar to that of any other hæmatoma, the fluid portion being slowly absorbed, and the contents of the cyst, the wall of which is formed by the perichondrium, gradually become inspissated, taking on the character of what is known as semi-organised blood-clot. With the aging of the tumour connective tissue is developed in its substance, the cyst walls form irregular adhesions, or adhesions occur between the cyst wall and the skin. New cartilage secreted by the perichondrium is developed, and the products of the effused material, eventually consisting of fibrous and cartilaginous tissue irregularly intermingled, develop in their substance bony deposits, which display microscopically well-formed and numerous Haversian

systems which render the osseous tissue soft and very vascular. The deformity presented in a case of long standing is due to the irregular contraction of the newly evolved fibrous tissue, to the unequal contraction of the cyst-wall, which being adherent to the cartilage and skin, throws these into folds and puckers. The gelatinous bloody contents of the othæmatoma of general paralysis present a close likeness to the extravasations under the dura mater in so-called pachymeningitis hæmorrhagica interna. The question now arises: *Why should the lesion be limited to the anterior or concave surface of the pinna?* The only solution to this question appears to be the fact that while the posterior auricular artery is distributed chiefly on the posterior or inner surface, the terminal branches of the artery are those that run through and round the cartilage to ramify on the outer surface; the circulation on the concave aspect being therefore terminal, the mechanical resistance to passive or active dilatation is much less than in other regions of the ear, and so a hæmorrhagic effusion is more likely to occur there, irrespective of the cause of the hæmorrhage. No definite arterial lesion appears to be necessary for the occurrence of othæmatomata; they certainly are found where some degenerative process has affected the arterial walls, but they as often, if not more frequently, occur where the arteries are perfectly healthy.

Treatment.—Surgical interference has been advocated in the treatment of hæmatoma auris, but any evacuation of the cyst contents leads only to a re-filling with freshly effused blood, or to an extreme degree of deformity when the wound heals. The principle to adopt is to prevent rupture, to attempt to allay the effusion by the application of cold, and then to follow the plan recommended by Hearder, to paint the external surface of the auricle with blistering fluid, by which means the contents are rapidly solidified, and the chance of consequent deformity is reduced to a minimum. Gray has advocated ligation of the posterior auricular artery, but this, apart from the almost certain failure as to the result desired, would be impracticable in the class of insane persons in which othæmatomata occur.

Ætiology.—The discussion of the ætiology of aural hæmatomata has been left for final consideration on account of the apparent importance of the question, as well as by reason that certain clinical and pathological facts which have been mentioned will be adduced in support of the theory of the cause of their origin. There

appears to have been, up till quite recently, an ardent desire on the part of alienists, the reason of which is obvious, to deny *in toto* the mechanical causation of othæmatoma, but when we come to consider the method of its production among the sane, that in them it never occurs spontaneously, but is the invariable result of mechanical violence, we cannot, unless prejudiced, shut our eyes to the fact that such too might be its causation in those mentally afflicted. Among the theories that have been advanced we may enumerate the following: that it is produced by causes analogous to those that excite cerebral apoplexy (Stiff); that it is due to the greater compactness of the bones of the skull in the insane, thus causing obstruction to the flow of blood through them, and consequent œdema of the parts from which the veins come (Sankey); that it is due to some blood affection casually connected with some general excitement and some mechanical influence (Yeats, Mercé, &c.); some confine themselves to the general statement that it is due to pathological causes connected in some way with the cerebral disturbance which gives rise to the mental derangement (F. Fischer); that it is the result of changes due to "chondromatic softening" (Virchow); while Bonnet, Atkins, Alexander Robertson, Browne, and others, while discarding mechanical violence altogether as a productive factor, look upon the functional disorder of the cervical sympathetic with or without associated cerebral disturbance as the originating cause. When we come to consider that the type of insanity in which othæmatomata most frequently occur—viz., general paralysis—is essentially that in which a general nervous degeneration, including of necessity the vaso-motor fibres in the sympathetic and cerebro-spinal nerves, is found to exist, it is certainly not surprising that in consequence of such nervous degeneration we should have local hyperæmias either active or passive in different parts of the body; the physiological action of a degenerating sympathetic, or any other nerve-system containing vaso-motor fibres, is to induce local hyperæmia, and where the condition is further aggravated by mental excitement causing further vaso-motor inhibition and vaso-dilator stimulation, the occurrence of othæmatoma requires but one more factor for its production, and that is mechanical violence. Where arterial degeneration exists in addition, hæmorrhagic effusions may occur without this factor, or may happen from extremely slight mechanical causes, just as bruises and so-called trophic

lesions are produced in general paralysis; and it is just in these cases that we find othæmatomata developing bilaterally. Where, however, the vaso-motor inhibition is slight and the arterial walls normal, as in purely maniacal affections, the spontaneous appearance of auricular hæmatoma is almost impossible. The arteries are, it is true, frequently dilated to their utmost capacity, but where no arterial disease exists there will be no rupture unless some mechanical influence is brought to bear on the distended arterial walls. The form of mechanical violence may be but slight, a patient with auditory hallucinations may box his own ears, or another may rub his head forcibly on hard pillows, or receive injuries from his fellow-patients, or be roughly handled during forcible feeding, or occasionally perhaps suffer deliberate ill-usage at the hands of attendants, but it is contrary to what happens in the body generally (if we for the moment exclude purpuric and scorbutic affections, and the hæmorrhagic diathesis), that a spontaneous hæmorrhage should occur in one particular part from so slight a cause. The mechanical factors in intra-cranial hæmorrhages and effusions are completely different. The conclusions we have arrived at, therefore, are that aural hæmatomata are the result of two causes—a degeneration of the nervous system but especially of the vaso-motor fibres of the cervical sympathetic, and mechanical violence; where arterial disease exists or the sympathetic degeneration is far advanced, spontaneous effusion may occur, but in the majority of cases the hæmatoma is due to mechanical violence inflicted while the local parts are in a condition of hyperæmia owing to this vaso-motor inhibition. We are all familiar with the common appearance presented by general paralytics, acute maniacs, agitated melancholics and epileptic maniacs, in which during periods of excitement the whole head, face and neck become suffused with blood; it is during this condition that when a blow falls upon the ear, impinging directly on to the hard and unresisting cranial wall, that arterial rupture takes place, and hæmorrhage occurs into the sub-perichondrial space of the ear. If we for a moment turn to consider the physical conditions which appear to be necessary for its occurrence among those mentally sound, we shall find that the condition of the parts is always that of hyperæmia, it is during the heat and excitement of a physical contest that a blow or other injury delivered on the auricle results in a sanguineous or sero-sanguineous effusion;

such a blow delivered when the parts are in their ordinary condition would result not in a hæmatoma, but in a superficial ecchymosis, a fact many a schoolboy can demonstrate; the arteries of the perichondrium are not then sufficiently distended to be influenced by the impact of the blow. The theory is therefore found to hold for the occurrence of hæmatoma auris in any condition—a local hyperæmia together with mechanical violence being the two co-operative causes. The predominance of othæmatoma in the left auricle is more easily proved by mechanical violence than by the laboured explanation offered by Browne, who has to travel back as far as the origin of the left common carotid and its proximity to the heart for an elucidation of this phenomenon. Brown-Séguard has produced hæmorrhage into the auricle in guinea-pigs by section and irritation of the restiform body in the medulla. This proves that the grey matter of the restiform bodies contains both vaso-motor and vaso-dilator fibres, since section will limit the contractility of the arterial walls, while irritation will produce enormous arterial dilatation. Why the dilatation should be sufficient to produce a hæmorrhagic effusion into the sub-perichondrial parts of the ear and into no other organ, is a problem that can only be explained by the peculiarity of the arterial distribution of the auricle.

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HAIR OF THE INSANE.—

Dr. Bucknill has said that a lunatic is a lunatic to his finger ends; he might have added, writes Darwin, "and often to the extremity of each particular hair."

Although this is true, the indications of insanity which the hair affords are not of great importance.

The prevailing colour of the hair of the insane, there are grounds for supposing, is different from that of sane people of the same class in the same district. Those possessing hair of a black, dark, or dark brown shade, have a greater tendency to become insane than those having hair of a fair or light brown hue, and those having brown hair, neither very light nor very dark, have the least tendency of any.

Such at all events is the case among the poor of Edinburgh, but it is possible that with people of another race the results may be very different. At Paris, Esquirol thought that the colour of the hair of the insane corresponded with that of the sane. In the table given below the colour of the hair in 389 admissions to the pauper wards of Morningside Asylum is given, the males and females being nearly equal in numbers; and for a comparison there is given the colour of the hair of 328 adult visitors to the Royal Edinburgh Infirmary, the majority of whom were females. Dr. Beddoe's statistics for Edinburgh are also given.

	Black and Dark Brown.	Brown.	Fair and Light Brown.
Pauper Insane, Morningside .	56.6	27.9	15.5
Visitors to Royal Infirmary . .	30.8	42.9	26.3
Poor of Edinburgh (Dr. Beddoe) .	37	40.1	23.2

There were two red-haired people among the insane, and one with red and two with dark red among the sane. In conclusion, as regards the prevailing colour, it may be mentioned that Dr. Beddoe has found that for Edinburgh, the colour of the hair in the phthisical shows a decided preponderance of the darker shades, and as Dr. Clouston and others have pointed out that the connection between phthisis and insanity is very close (*see* PHTHISICAL INSANITY) a similar preponderance in insanity is not surprising.

It is commonly believed that people with certain colours of hair are more prone to certain forms of insanity than

others. It has long been recognised that black hair very often accompanies a melancholic temperament, and there is an impression that black-haired people are more liable to melancholia than light-haired, and that the latter are more subject to attacks of mania. Though our statistics confirm this impression, the difference is not of a very striking nature.

	Black and Dark Brown.	Brown.	Fair and Light Brown.
Melancholia (179)	60.3	25.1	14.6
Mania (190) . .	53.1	30.5	16.4

Esquirol believed that some people with dark hair and eyes became violently maniacal, and we have found that the percentage of dark-haired among the acutely maniacal is above the average. He also believed that the illness in the dark-haired terminated more frequently in a marked crisis, and that the fair-haired fell more readily into chronic disease.

Grey hair is less common among the chronically insane who have become insane when young, and among the demented, owing partly to the fact that the cares and worries of life fall on them less, and are less felt. If, however, a person above middle age be attacked by insanity, greyness of hair rather tends to develop, whether recovery takes place or not, and in this respect insanity does not differ from many other diseases.

Grief and fear are well known to turn the hair grey, and it is found that melancholia has a greater tendency to produce greyness than mania. Dr. Hack Tuke reports a case of recurrent insanity in which the hair turned grey during each attack, and recovered its healthy brown colour when the patient was well. Grey hair in the insane is very frequently found patchy.

The **amount** and **coarseness** of the hair on the head of the chronically insane is increased, especially in those suffering from chronic mania or any form of dementia with excitement or epilepsy. Possibly the same causes act in producing this effect as produce the increase in the thickness of the skull-cap. The hair in melancholia sometimes becomes thin, and is believed not to grow so fast as in health. In two cases in our experience, the one of dementia and the other of recovery after

melancholia, the hair suddenly grew very much thicker, on the abatement of the melancholic symptoms. General paralytics and epileptics as a rule have good heads of hair.

The **gloss** of the hair is often very appreciably diminished, and this may occur in any pronounced variety of insanity. This may be due to some structural change in the hair or to diminution of the sebaceous secretions, but it is also due partly to the lessened attention and the want of brushing, the friction of which alone is known to produce a gloss. It is less noticeable in the private insane than in the pauper.

An **erection** of the hair in the head has long been known to occur occasionally in insanity. It may occur in acute mania, especially of the furious type, in recurrent mania, and in excited melancholia; and it may exist as a permanent state in chronic mania, and many cases of dementia, often in the epileptic variety. The individual hairs in this condition seem to unravel themselves from their neighbours and to stand out erect and separate all over the head. The degree of the erection in the non-permanent varieties often bears a direct relationship to the stage and acuteness of the excitement. Thus, as the patient tends to get excited, the hair is first noticed to be more difficult to keep brushed and smooth; then it is gradually noticed to rise till it reaches its maximum, contemporaneously with the height of the excitement. As the excitement subsides, the hair gradually becomes flatter and smoother, and more amenable to brushing. In the emotional states of fright and anger, the hair may become erect.

The **distribution** of the hair on the head occasionally shows some irregularity in congenital cases. There may be patches where the amount of hair is very scanty. The line of demarcation on the forehead may be an irregular one, and the hair encroach on the face, or there may be a twisted tuft.

Baldness has a lesser tendency to occur among the insane than in those of sound mind, and this is especially so among demented.

Alopecia of the head only, or of the entire body, may occur as a neurosis in families with insane heredity. Thus, we know an example of the latter in a lady, whose mother was epileptic, and three of the brothers and sisters insane. It may also come on during insanity, or even during unusual mental or emotional strain of an unpleasant kind.

There are many **clinical features** of

interest in connection with the hair of the head. An unkempt appearance of the hair is naturally an accompaniment of almost all forms of insanity. It is more noticeable when it exists among women than among men, and it is a decided sign of improvement when a female patient begins to take an interest in the appearance of her hair. In insanity with great excitement the hair is completely dishevelled, but in melancholia the hair is mainly dishevelled on the sides of the head, owing to the habit of frequently passing the fingers through the hair in that situation. Patches of baldness are often produced by the patient perpetually rubbing his head at a particular spot. Melancholic patients often indulge in this rubbing over the temporal or parietal regions, and occasionally the vertex, till the part is entirely denuded of hair. Some patients, usually melancholic, also have a habit of picking the head in several places, and thus bald spots and often sores are produced. Others may pick the entire hair off the head. These peculiar actions probably bear some relationship to the habit of many sane people of scratching the head when in doubt. They may, however, be due to delusions, or to local irritations, or to perverted sensations, caused by nerve lesions.

Female patients suffering from monomania of grandeur often arrange their hair in some striking and conspicuous style.

The hair may be **the subject of delusions** also. Thus one hypochondriac stated that his hair had turned white, another that it had grown into feathers, and another that it was so coarse that it attracted attention. A general paralytic stated that his hair was made of gold; no doubt the expression "golden hair" suggested this delusion. Another patient with hallucinations of hearing stated that telephone wires were attached to her hair.

The hair of the insane shows a great tendency to become infested with pediculi, unless very carefully attended to. If this has occurred, there is nothing so effectual in destroying them as sponging the hair with decoctum staphisagriæ, and allowing it to dry.

Hair on the face, the sign of full sexual development in the male, is frequently very scanty and delayed in congenital cases, where the sexual development is imperfect. In the female, with imperfect sexual development and with the cessation of the sexual functions, the converse may occur, and there may be an excessive growth of hair (*see* BEARDED WOMEN). With the imperfect development of the sexual functions, inherited

characteristics which would otherwise have remained latent, have in these instances developed themselves.

In cases of adolescent insanity in the male, the development of the beard should be noted, as it marks an epoch. Its rapid growth may precede and frequently accompanies recovery, but should it develop without mental improvement accompanying it, the prognosis is bad.

Hair on the body (pubes, axillæ, &c.) is scanty in many congenital cases, and in the Mongolian idiot hair over the whole body is deficient. There are some other imbeciles however in whom the amount of hair is greater than normal.

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HALLUCINATIO HYPOCHONDRIASIS (*hallucinator*, I wander in mind; *ὑποχονδριακός*, from *ὑπό*, under; *χόνδρος*, the cartilage). One affected in the hypochondrium. A synonym of Hypochondriasis.

HALLUCINATION (*hallucinator*, I wander in mind). A sensation perceived by the mind, whether through the sense of sight, hearing, smell, taste, or feeling, without any external cause capable of producing it. (Fr. *hallucination*; Ger. *Sinnestäuschung*. *Missgriff*.)

HALLUCINATION, HYPNAGOGIC (*hallucinator*; *ὑπνος*, sleep; *ἀγωγός*, a leading, allurement). The hallucination which occurs in a half-waking, half-sleeping condition.

HALLUCINATION, MOTOR (*hallucinator*; *moveo*, I move). A false sensation of movement as in giddiness.

HALLUCINATION NÉGATIVE (Fr.). The term used for the state in which a person, apparently normal in other respects, is unconscious of certain sensations relating to a particular person or thing as the result of a suggestion previously received while in the hypnotic state.

HALLUCINATION, PSYCHIC (*hallucinator*; *ψυχή*, the soul). A hallucination which is purely mental, having no relation to any supposed external object.

HALLUCINATION, PSYCHO-SENSORIAL (*hallucinator*; *ψυχή*; *sensorium*, the place where the senses reside). A hallucination, taking origin in an abnormal activity of the perceptive centre of general sensibility, or in that of some special sense.

HALLUCINATION, UNILATERAL (*hallucinator*; *unus*, one; *lateralis*, belonging to the side). A sensory hallucination referrible to one side only. (Fr. *hallucinations dédoublées* of Michéa.)

HALLUCINATIONS. — **History.** — Hippocrates recognised hallucination.

Of a woman he says, "On the eleventh day she sleeps, she remembers everything, but in a short time the hallucinations reappear" ("Epidemics," Bk. I. *Littre*, vol. ii. p. 693). Again, in "Internal Disorders," he says of a patient: "It seemed to him that reptiles appeared before his eyes, animals of every kind, which fought; he himself fought in the midst of them, and spoke as if he saw combats and battles" (*Littre*, vol. vii. p. 287).

Asclepiades distinguishes under the term "phantasia" between hallucination and illusion: one purely psychical, *silentibus sensibus*; the other occurs when there is a primary sensorial impression as a determining element (*ex visis veris ducentes quidam, mentis errorem*). Cicero and Cælius Aurelianus make use of the same word for apperception, hallucination, and illusion. Celsus employs the word *imago*, and recognises morbid hallucinations: *Quidum imaginibus, non mente, falluntur*. Hallucinations have served to influence the history of all nations in a very remarkable manner. Now that their true nature is better understood in civilised countries, their influence is limited, but it cannot be said that they have ceased to be regarded as objective realities, or that they are powerless to affect the lives of individuals, or even the destinies of nations.

Medical writers in the early part of this century contributed largely to the correct appreciation of subjective sensations, but Esquirol, more clearly than any previous author, pointed out their true nature.

Definition. — Sensations experienced, although no external objects act upon the periphery of the sensory nerves. Such sensations do not constitute insanity, unless they are credited by the individual as realities under conditions in which reason and experience ought to forbid such belief. Any one or all of the senses may be affected. With regard to the relative frequency of visual, auditory, gustatory, olfactory hallucinations and those of general sensation, they occur in the following order: *—Hearing, sight, taste, common sensation, and smell.

The distinction laid down by Esquirol between hallucination and illusion—namely, that in the latter an external object forms the basis of an erroneous perception—has been almost universally adopted. Professor Ball has, however, pointed out that even an illusion involves hallucination,

* That is, among the insane. It is maintained, however, and probably with reason, that among the sane, visual hallucinations are more common. (Dechambre's "Dictionnaire Encyclopédique des Sciences Médicales": Hallucination, by M. Christian.)

and that there is no fundamental difference between the two. At the same time we are disposed to maintain Esquirol's doctrine, as we think it is practically important. The distinction holds good that in hallucinations no external stimulus occurs to excite them. There can be no doubt also that the misinterpretation of an actual object usually connotes a less serious disorder of the sensory apparatus or the intellect. Illusions are the experience of most people; hallucinations, of few.

Auditory Hallucinations.—The form they take is of endless variety. Voices are the most common, and when they assume the character of a mandate they become exceedingly serious. They are a fruitful source of homicidal and suicidal acts. This fact renders it all-important for the expert to ascertain whether a patient hears voices. In many instances the subject of auditory hallucinations carries on a continuous dialogue. A lady now under observation does nothing whatever in the course of the day without first consulting an imaginary friend, of whom she audibly asks directions, receives a reply, and obeys him implicitly. By his command, as she believes, she usually stands with her face in the corner of the room, while at times she absolutely refuses to take food, from his supposed injunction to abstain. Different and even opposing voices are heard by some patients. M. Christian mentions a patient who believed himself to be the Pope, and heard Catholic and Protestant voices striving for the mastery, the latter endeavouring to make him abjure his religion, while the former retorted with arguments on the other side. The patient was much depressed, "for," said he, "I do not wish to change my religion." Hallucinations of hearing may be unilateral. Some observers state that such is frequently the case, but this has not been our experience.

That they may occur in deaf people is well known; and, in fact, imperfect hearing is frequently one cause of the disorder. It is said of Beethoven, that after he had become completely deaf he heard his own compositions very distinctly in his head.*

Visual Hallucinations.—Faces are the most frequent forms, and are frequent in the insanity of persecution. They often assume horrible and disgusting expressions, and may render life totally unbearable. They may constitute the *aura* of an epileptic seizure. They may in sane as well as in insane people consist of figures in motion, as, for example, a regi-

ment marching within the field of vision. The following interesting experience occurred to two men, and was related by a medical man who subsequently took charge of the York Retreat, and has not been hitherto published:—

About five o'clock P.M., between Windhill and Packing Hill, they were walking on the side of a turnpike road engaged in conversation. C., who was in advance of J., saw a great company of men before them. As they seemed to be just upon them, J., leaning against a wall, called out to C., "Come back!" He came, and J. said to him, pointing with his stick, "Do you see nothing?" The other replied, "Yes." Then J.: "I think there are two or three thousand of them." C.: "Nay, I think there be five or six thousand" ("but," said J. to the doctor, "I'm sure there were more, for the fields were filled with them on both sides"). They were all dressed in white, faced with black or blue, and were walking backwards and forwards, and crossed the road, and were talking in a friendly way, but C. and J. could not distinguish what they said, only hearing the *sound* of talking, as if in another room. J. and C. went forwards in the road amongst them, but they touched none of them, and proceeded until the company grew thinner, when at length, on looking back, they had all disappeared. C. said a man and woman were on the ground where they had seen the company, but J. could see nothing. When asked by the doctor whether he could tell what they wore on their heads, J. said "he could not tell."

The doctor considered J. and C. as sober, credible witnesses of what they related, and adds that a still larger number saw in Stockton Forest, a few months previously, a very similar multitude of people of which no explanation could be given. No doubt the hallucinations of J. and C. would be most easily explained as the effect of alcoholic potations, although the medical man entertained no such suspicion. When a considerable number perceive a multitude of men, we attribute the phenomena to contagious expectant attention originating in the imagination of one of the number.

The fact that some hallucinated persons cease to see the object any longer on closing the eyes, or on placing a screen before them, confirms the belief in their reality. It would seem as if some background, so to speak, were necessary upon which the visual hallucination should be projected at a certain distance, but it is very difficult to explain why the halluci-

* M. Christian, *op. cit.*, p. 84.

nations of some patients are equally vivid whether the eyes are open or shut.

The writer has, in an article on "Hallucinations," in *Brain*, considered the vexed question of what effect is produced upon a subjective image by the lateral pressure upon the eyeball of one eye. It is sufficient to say here that he believes careful observation will show that, contrary to what has been frequently stated, such image is never doubled by the manipulation referred to. The same holds good of a multiplying lens. He is satisfied that doubling never occurs without an external object being seen. If this be so, it is clear that lateral pressure on the eyeball is a trustworthy test of subjectivity.

Further, the after-image of a luminous object obscures or entirely conceals real objects, moves with the motions of the eye, and is "projected" when the observer looks on a dark ground. All this may be true of visual hallucinations, and, when so, we must regard them as involving the retina. If, however, these conditions are not observed, we infer that these visual hallucinations do not involve the retina, but are confined to the cortical sensory centres, or possibly they extend to the sensum. Certain it is that hallucinations of sight may occur when the optic nerves are atrophied, and therefore the retina is not the seat of the vision.

Gustatory Hallucinations.—These are of importance, because they frequently suggest to the patient that his food has been amended with. A metallic taste is frequently complained of. The refusal to take food is, naturally, the result of gustatory hallucinations, coupled with the delusions of conspiracies and plots.

Olfactory Hallucinations. (See SMEL.)

Tactile Hallucinations.—In these we include those of general sensation. Some patients complain of painful sensations which are evidently altogether subjective. Electrical shocks are common, as are alleged mesmeric influences. Under this head must be included the delusions those insane persons labour under who believe themselves transformed into other substances than their body, as wood or glass. We are not so sure whether subjective sensations explain the delusion of being changed into other animals, as in lycanthropy. Sexual hallucinations fall under this category, and often form marked symptoms among the insane. The chapter in the history of witchcraft which is the most painful to contemplate is that which has for its foundation the sensations of this class.

It sometimes happens, although rarely,

that hallucinations of all the senses may be observed in the same patient. A striking case of this kind is recorded by the writer in the "Manual of Psychological Medicine," 4th edition, p. 212.

Hypnagogic Hallucinations.—This term has been applied to those hallucinations which arise just before a person falls to sleep, whether visual or auditory, &c.

Hallucinations and illusions may be caused in the sane by alcohol (see ALCOHOLISM), those of sight being the most frequent. Indeed, some authorities, as Lasègue, have asserted that no other senses are affected; but this is going too far. Opium, belladonna, Indian hemp, &c., are known to produce the same effect.

Frequency of Hallucinations in the Different Forms of Mental Disorder.—

Delusional insanity is in a large proportion of instances associated with hallucinations or illusions. Those classifications of insanity which relegate all subjective sensations to this form of insanity necessarily imply this statement. But, apart from this, it must be held that, although many patients entertain delusions without any of the senses being affected, a very considerable number have delusions distinct from, but originating in, a hallucination. In acute mania, hallucinations may often be inferred from the gestures of the patients, although it may be difficult to prove that they are present. That they are by no means uncommon is certain. In religious mania, they assume a very different form, probably more vivid in Roman Catholic than in Protestant countries. It has been much discussed whether hallucinations are common in general paralysis, and some have denied their presence altogether. We cannot endorse this opinion. In dementia, they occur, although infrequently. In idiocy and imbecility, they are not found. In epilepsy, they not only occur, as has already been stated, as a warning of the attack, but they may be present for a length of time. In a case of this kind we have known the patient labour under visual hallucinations, as also illusions causing the faces of those around the patient to appear entirely altered.

Seat of Hallucination.—Brewster maintained that all hallucinations involve the corresponding peripheral sense-organ; and Huxley does not differ from him. Opposed to this doctrine are Esquirol, Falret, Lélut, and others, who hold that hallucination is a purely cerebral phenomenon, as much as the production of ideas. The sensory nerves and peripheral sense-organs have therefore no

part in the subjective image. Both doctrines are false, or, rather, they are both right and both wrong. On the one hand, the occurrence of visual spectra in cases where the optic nerves are atrophied disproves the exclusive statement of Brewster. On the other hand, if visual spectra or hallucinations exhibit the same phenomena as those which occur in luminous after-images, they involve the retina. The knowledge which we now possess of cortical sensory centres supports the position that hallucinations may occur without the participation of the end-organs.

Baillarger was early in the field in the discussion of the pathology of hallucinations. He divided them into psychosensorial—that is to say, those which arise from the combined action of the imagination and the sense-organs; and psychological—those, namely, which originate in a disordered mental state without the sense-organs being involved. The latter, as we have seen, is the doctrine of Esquirol.

M. Ritti has advanced a theory, adopted by M. Christian, which places the seat of hallucinations, in accordance with the brain physiology of Luys, in the optic thalami, from whence peripheral impressions irradiate to the various regions of the cerebral cortex. The cells of the latter respond to the false indications conveyed to them as if they were real.

The effect of certain drugs in causing hallucinations is probably due to excitement of the periphery of the nerve by some drugs, and of the cerebral centres by others.

Prognosis.—Auditory hallucinations are not favourable; at the same time, they are so common that one must not regard them too seriously. One thing is certain, that when they have lasted for a long period they add to the gravity of the case.

THE EDITOR.

HALLUCINATIONS, HEMIOPIC (*hallucinator*; ἡμιος, half; ὄψ, the eye). The occurrence of visual hallucinations in one of the lateral halves of the visual field, usually but not invariably associated with a corresponding hemianopsia. It has been found in the sane as well as in those subject to epilepsy, migraine, anæmia, and delusional insanity. When coincident with hemianopsia, such hallucinations probably originate in a cortical irritation or malnutrition limited to the occipital lobes.

HALLUCINATIONS OF THE DESERT. (See LE RAGLE.)

HANDWRITING OF THE INSANE.—Handwriting must be looked upon as a highly developed method of muscular expression and as such will be affected by any nervous states or condi-

tions which affect the nervous control and the distribution of nervous energy. Persons suffering from any form of nervous exhaustion will be found to show it in their methods of expression (Fig. 19), the result being want of clearness and definiteness. It has already been noticed that much may be learnt from the study of the writing of the insane. The late Dr. Mackenzie Bacon, formerly of Fulbourne, Cambridge, wrote on the subject, and Dr. Erlenmeyer, of Bendorf (Germany), has further contributed to the subject, while in October 1889 we wrote an article in the *Illustrated Medical News*, on the same subject. We shall make use of the same illustrations which then served us, and will shortly give our conclusions. With age the handwriting may become very shaky though still maintaining its general characteristics. This is seen to be a variable symptom, so that one man has the writing of old age at seventy, while another does not exhibit it till nearly ninety (see Figs. 1 and 2).

Similar shakiness of writing is met with in some cases of temporary nervous weakness; such is seen in alcoholism and in states of nervous exhaustion occurring after fevers, or after acute attack of mental disorder. Thus both in the earlier and later stages of mania (Fig. 19), as well as in melancholia, great tremulousness may be present (Fig. 20).

Hitherto more has been made of the changes met with in general paralysis of the insane than in any other mental disorder; the reason for this being that, in this disease, the changes are more common, more gradual in their development and more easily watched. We shall therefore give a series of samples of handwriting from general paralysis. It is noteworthy that great tremulousness may come on early and may steadily advance (see Figs. 3 and 4, 12, 13 and 14), or may pass off to a greater or less extent just as the other symptoms of acute mania may pass away in general paralysis of the insane; change in handwriting may be light or may come on late. It generally is marked by a slowing of the rate of writing (see Figs. 6 and 7) with marked effort in the production of the different letters, so that each letter has a tendency to be separated from its fellows (see Fig. 5). The upstrokes become irregularly shaky (Fig. 4), and there is a tendency to drop letters (Figs. 9 and 10), so that it is common to find the ends of the words clipped, or to find the dropping out of letters in the middle of the word. It is not uncommon to find the re-duplication of certain words (see Fig. 10) which recalls the peculiar

FIG. 1.

44. - 75 - 90
 St Georges Road
 Southwark

FIG. 2.

7 St. Georges Place
 June 8th 1886

FIG. 3.

All other matters concerning
 the Corps, can I think only
 be discussed personally.

FIG. 4.

The address you ask for is
 Whitlock and Son

FIG. 5.

Caudeu Town' N.W

FIG. 6.

James Lynch Walsh. H. St. Lawrence

FIG. 7.

Sir James L. Walsh. Mayville, Loughborough

FIG. 8.

Wilhelm

FIG. 9.

W R A King Hallam 5th
 Chancellor of Exchequer
 Archbishop of Canterbury
 do London
 do Canterbury
 do Islington
 do Richmond
 do Rochester
 do East India
 do Governor of Colon
 do Bethlehem
 do Jerusalem
 Millions 26000
 100 lines over

FIG. 10.

Richard White^{Kingland} Kingland, Road, Manor
 (Castle), 1st Henry Edward 1st Richard Robert
 Edward Edwin Potenter of Exention Duke of
 of life

FIG. 11.

H. T. Smith

FIG. 12.

+ H. T. Smith

FIG. 13.

Fred. M. Smith

FIG. 15.

Fitzroy
1864

FIG. 14.

[Illegible handwriting]

FIG. 16.

John Wm Fitzroy

FIG. 17.

Englesby Wickham
also Lord of the

FIG. 18.

East Street 22
Walsworth.

FIG. 19.

Georg Richard Charles

FIG. 20.

Ladyhowe House
New Mills
St.

FIG. 21.

[Illegible handwriting, possibly upside down]

FIG. 22.

Bethlehem Royal Hospital
 St George Road London, S.E.
 May 23rd, 1887.

My dearest Wife,

Your letters have not received
 any communications whatever!

My health as hoped, or illness
 had any my misfortune, could at
 any one friend have line leaved.

Have your love & our affections
 for years have singularly left
 without a day, & have you so
 entirely without neglected!

FIG. 23.

William

FIG. 24.

May 9th Southgate Road

FIG. 25.

case of Bright's
 Hemichorea

Paul Jones

J. M. L.

mode of speech in which the sounds are blurred and prolonged. In a few cases the handwriting, in consequence of the care required to produce each letter, becomes more legible than when it is current. It is noteworthy that the character of the change depends to a great extent on the original handwriting (Fig. 10) and the occupation of the patient, so that the literary man's handwriting becomes more difficult to read than ever, while the business man's handwriting is shaky but still legible.

General paralytics can write better with a quill than with a steel pen, and still better with a broad than with a fine nib; long after it is impossible for a patient to write with a pen he may be able to write with a pencil.

The contents of the writing give important indication of the nature of the disorder (see Fig. 9); the general paralytic often giving expression to his grandiose ideas (see Figs. 7, 8 and 9).

The general paralytic is greatly given to writing letters in the earlier stages of his disease. The fact of a patient filling endless pages with trivial matter is cause for grave suspicion.

Hypochondriacs fill pages with their sensations, hysterical woman with their feelings, but the general paralytic is diffuse and inconsequent.

There is nothing special in the handwriting of the acutely maniacal though it is common among them to meet with tremor and shakiness (see Fig. 19); in melancholia (see Fig. 20) there may be extreme shakiness as well, but, as with senile cases the writing may be shaky, although there is no dropping of letters nor is there any special isolation of each separate letter.

In some forms of hemiplegia, and in some forms of secondary dementia there may be marked loss of power of expression associated with tremulousness of hands (see Figs. 22 and 23). This may occur too in chorea (see Fig. 25), paralysis agitans (see Fig. 24), athetosis and the like.

The character of the handwriting is often changed in aphasia, and it is in very many ways a reproduction of the speech-defects which are present in that state—varying as do those defects in verbal expression. Fig. 22 is an example of the writing of an aphasic man.

Mirror writing, a specimen of which is annexed (see Fig. 21), is met with in some forms of mental weakness and in some conditions of mental disorder, allied to the hysterical. We have met with it in an idiot who learnt to write thus with the left hand. Mirror writing is generally pro-

duced by the left hand, and is written from right to left; it may occur in cases of moral perversion, and may be only temporary, recurring with the other symptoms of disorder. It is noteworthy that it is more common among women than among men, and that it is more easily acquired by the more highly nervous people. We believe that neurotic inheritance aids in the facility with which this is acquired.

The late Dr. Bacon, in his book already mentioned, sums up the points of importance in relationship with the writing of the insane under seven heads which are worth reproducing here—(1) the writing as illustrating chronic insanity; (2) as illustrating acute attacks; (3) as, rarely, the only evidence of insanity; (4) as a sign of convalescence; (5) as indicating an on-coming attack; (6) as illustrating phases of cases of ordinary mania; (7) as showing the changes in handwriting in general paralysis.

(1) There are many chronically insane patients who have very characteristic habits of writing and drawing; in many cases the ideas are limited and their methods of expression clearly point to the defect. In many chronic cases, there may be very advanced mental weakness with still a power of writing in an almost automatic way of the past delusions. One patient will copy out addresses from the daily papers in endless series without any object, while others will repeat over and over again a request to be taken to the small-pox hospital, or to some address which has long ceased to exist. Letters in the same way may be addressed for years to deceased relatives. In some cases of chronic insanity the letters are much better than the verbal expression, it seems as if certain weak-minded persons can slowly form their ideas just as the uneducated can slowly form their letters. In Bethlem, there is one patient who once or twice a year can be induced to write a letter to his relations, and this is perfectly lucid and interesting, telling of the passing life to which, at the time, the patient appeared to be dead. This patient is weak-minded and solitary, yet can, as we say, slowly write a sensible letter. The chronic hypochondriac is given to fill pages with complaints of real and imaginary ailments, and the chronic case of melancholia may be able to pour out very voluminous accounts of his actual or potential torments.

(2) Under the second head Dr. Bacon placed the changes indicating acute attacks. It is interesting to remark that in some cases of recurrent insanity the

same sort of letters are written by the patients in each attack. Thus one patient always began to write to us in French just before the onset of acute mania, and another always began to describe his noble origin and to address the world as to his great projects. In some cases one can almost judge in these recurrent attacks the progress which has been made in the illness by the nature of the letters. We have often pointed out that complaints as to detention arise very frequently in cases just as they are beginning to recover. They have either been too much occupied with their misery or their grandeur during the earlier stages to take note of their surroundings, but later they feel this intensely and they will repeat that "if kept in the asylum they will go mad."

(3) In a few rare instances the only evidence of insanity is to be met with in the letters, and in many more the chief evidence is thus discovered. We frequently meet with patients in whom the tendency to write libellous post-cards is the most evident sign of insanity. A woman at the climacteric becomes morbidly jealous, and will write anonymous post-cards to her husband, sending them to his clubs or to his office and will write similar, only more abusive or obscene letters, to the woman whom she suspects. Such letters are often the chief sign or the earliest sign of genuine derangement.

In some cases of "insanity with doubt," the letter is a very useful aid to diagnosis. Thus one patient of ours would write on post-cards without signing his name, being afraid lest the most trivial remark might have some meaning which he did not intend and would follow post-card by post-card to correct possible mistakes. Another would insist on the return of all letters, lest they should be used against him.

(4) Under the fourth head we have already spoken of the disquiet often present in early convalescents from insanity, but there is often a strong desire once more to return to old habits; thus the melancholic wife who when well was in the habit of writing daily letters to her husband when away from him, and who for months could not be induced to write, now writes again at first tentatively, then freely as of old. The return of affection, of interest and redevelopment of old habits, in writing are satisfactory signs.

(5) The threatening of a recurrence of insanity may be seen, as we have pointed out, in the nature of the letters. Beside the cases already referred to, we would mention that of a lady who always began her

attacks by the writing of abusive letters to the doctors at the asylum about her previous "illegal" detention there.

(6) The phases of the mental illness may be marked by the nature of the letters. The patient may begin by writing miserable complaints of bodily and mental trouble, which after a time are followed by excited religious letters full of gratitude for the deliverance from her misery, this being the stage of transition from melancholia to mania; then comes the perpetual flow of excited letters which may slowly give place to short letters, or there may cease to be any at all.

(7) We need not go further into details as to the last of Dr. Bacon's classes, namely, that concerned with general paralysis of the insane.

We will conclude this article by pointing out that there is not a single point which can be called absolutely pathognomonic in the writing, but that writing as a highly organised expression is likely to suffer in various ways and in many degrees with whatever affects the nervous centres chiefly concerned with expression.

GEO. H. SAVAGE.

HAUT MAL (Fr.). A term generally adopted in England for epilepsy in its full development.

HEAD, SIZE AND SHAPE OF, IN THE INSANE.—The conclusions arrived at in the present article are drawn from the examination of the heads of 3883 individuals—viz., 1761 insane males and 1900 insane females, 183 sane males and 39 sane females.

The **measurements** taken are the whole circumference, the frontal circumference, the antero-posterior arch, the transverse arch, the antero-posterior and transverse diameters.

The *whole circumference* is measured above the supra-orbital ridges and over occipital protuberance.

The *frontal circumference*, round forehead above supra-orbital ridges from a point above one auditory meatus to a point above the other on the circumferential line.

Antero-posterior arch, from external occipital protuberance to root of nose.

Transverse arch, from auditory meatus to auditory meatus over vault.

The *diameters, antero-posterior and transverse*, are respectively the longest contained in the skull.

The measurements are given in inches and decimals of inches.

The size of the insane head, unlike the insane brain (*q.v.*), is larger than that of the sane in individuals of the same class. This is shown in Table I. (opposite), where

all the male members of the insane class whose employment had, previous to their admission to the Wakefield Asylum, been of a character requiring a certain amount of head work, and not associated with manual labour—clerks, schoolmasters, accountants, master shopkeepers, &c.—are grouped together, and give the following average measurements, which are compared with those of 183 sane men of the same or a superior class, including doctors, lawyers, clergymen, clerks, attendants, &c.

Here the measurements of the insane are larger in all directions, save that of the transverse arch, than is the case in the sane.

A good index is obtained for estimating the relative value of heads by adding together the measurements of the whole circumference and the two arches. This **cranial index** includes the measurements which are of the most importance in relation to skull capacity.

On applying this index to Table I. it is found that the index of the insane heads amounts to 50.534, whilst the sane heads show one of only 50.333.

This index is further valuable as exhibiting very nearly the weight, in ounces, of the normal brain contained in any skull to which it may be applied.

The proportion that the frontal measure

bears to the whole circumference is, in Table I., for the insane head-workers as 1 is to 1.90, and for the sane as 1 is to 1.91; which is again in favour of the insane.

Treating more generally of the insane, and including all classes of insanity, an opposite state of affairs to Table I. is shown in Table II. (below).

The sane females in Table II. consist of 7 ladies and 32 nurses, and show, with the exception of the frontal circumference, larger average measurements than their insane sisters. The sane men have the advantage of the insane in all measurements, but it must be remembered that the latter class includes a large number of idiots, whose small heads necessarily reduce greatly the general insane average.

The cranial index shows that there is a greater average difference in skull value between the sexes in the insane than in the sane.

The **cephalic index**—that is to say, the relation of the maximum transverse diameter to the maximum antero-posterior diameter, of which the formula is

$$\frac{\text{Trans. diameter} \times 100}{\text{Ant.-post. diameter}}$$

—shows all, sane and insane, male and female, in Table II. to belong on the average

TABLE I.

Head-workers.	Average Circumference.		Average Arch.		Average Diameter.	
	Whole.	Frontal.	Ant.-post.	Transverse.	Ant.-post.	Transverse.
Insane	22.461	11.807	14.413	13.660	7.889	6.339
Sane	22.370	11.667	14.251	13.712	7.768	6.301
Difference . .	+ 0.091	+ 0.140	+ 0.162	- 0.052	+ 0.121	+ 0.038

TABLE II.

No.	Class.	Average Circumference.		Average Arch.		Average Diameter.	
		Whole.	Frontal.	Ant.-post.	Transverse.	Ant.-post.	Transverse.
1761	Insane (male) .	22.17	11.59	14.08	13.43	7.73	6.21
1900	„ (female) .	21.36	11.00	13.28	12.13	7.43	6.02
183	Sane (male) .	22.37	11.66	14.25	13.71	7.76	6.30
39	„ (female) .	21.67	10.98	13.59	13.00	7.55	6.08

TABLE III.

Different Ages.	Average Age in Years.	Average Circumference.		Average Arch.		Average Diameter.		
		Whole.	Frontal.	Ant.-post.	Transverse.	Ant.-post.	Transverse.	
Under 20	Male .	16.25	21.00	11.06	13.93	13.00	7.64	6.01
	Female	16.00	20.72	10.69	12.71	12.67	7.20	5.97
20-30	Male .	25.96	22.03	11.63	14.05	13.56	7.71	6.06
	Female	25.20	21.00	10.73	12.91	12.70	7.36	6.02
30-40	Male .	35.02	22.01	11.51	13.75	13.25	7.76	6.22
	Female	34.60	21.26	10.81	12.90	12.82	7.40	6.00
40-50	Male .	44.38	22.29	11.69	14.01	13.44	7.82	6.28
	Female	43.80	21.21	10.80	13.06	12.76	7.63	6.04
50-60	Male .	53.80	22.28	11.71	13.95	13.36	7.57	6.07
	Female	54.00	21.49	10.90	13.03	12.83	7.50	6.00
60-70	Male .	64.21	22.45	11.80	14.07	13.38	7.89	6.29
	Female	63.80	21.50	10.93	12.98	12.80	7.54	6.06
Over 70	Male .	77.11	22.23	11.44	14.12	13.25	7.85	6.23
	Female	75.70	21.19	10.80	12.99	12.63	7.43	6.01

TABLE IV.

Form of Insanity (Males only).	Average Circumference.		Average Arch.		Average Diameter.		Cranial Index.
	Whole.	Frontal.	Ant.-post.	Transverse.	Ant.-post.	Transverse.	
Idiocy	21.68	11.34	13.76	13.34	7.43	6.16	48.78
Imbecility	22.05	11.73	14.26	13.52	7.67	6.22	49.83
Dementia	22.14	11.58	14.01	13.35	7.70	6.21	49.50
General paralysis	22.02	11.44	14.03	13.44	7.76	6.26	49.49
Epilepsy	22.24	11.68	14.33	13.53	7.73	6.25	50.10
Chronic mania	22.34	11.73	14.31	13.52	7.78	6.27	50.17
Acute forms	22.29	11.73	14.22	13.56	7.78	6.28	50.07
Monomania of suspicion	22.26	11.70	14.30	13.54	7.81	6.22	50.10

TABLE V.

Idiots.	Average Age.	Average Circumference.		Average Arch.		Average Diameter.	
		Whole.	Frontal.	Ant.-post.	Transverse.	Ant.-post.	Transverse.
Male	14.5	20.96	10.87	13.57	12.93	7.46	5.96
Female	16.6	20.49	10.59	12.99	12.43	7.35	5.94

TABLE VI.

Inches.	Average Height in Inches.	Average Circumference.		Average Arch.		Average Diameter.	
		Whole.	Frontal.	Ant.-post.	Transverse.	Ant.-post.	Transverse.
68 and over .	68.95	22.34	11.72	14.45	13.62	7.82	6.28
Under 68 .	64.26	22.17	11.65	14.12	13.45	7.72	6.24

TABLE VII.

Employment.	Average Age.	Average Circumference.		Average Arch.		Average Diameter.	
		Whole.	Frontal.	Ant.-post.	Transverse.	Ant.-post.	Transverse.
Navvies . . .	40.2	22.28	11.68	13.96	13.50	7.68	6.29
Soldiers . . .	44.3	22.04	11.45	14.02	13.20	7.75	6.15
Sailors . . .	41.0	22.12	11.50	14.07	13.42	7.71	6.12
Grocers . . .	41.3	22.35	11.45	14.06	13.23	7.77	6.33
Butchers . . .	40.0	22.15	11.70	13.97	13.42	7.78	6.22
Shoemakers . . .	45.7	22.28	11.28	14.18	13.21	7.86	6.21
Cabinet-makers	40.1	22.12	11.27	14.02	12.85	7.69	6.12
Farmers . . .	53.0	22.10	11.10	13.98	13.17	7.75	6.24
Gardeners . . .	38.3	21.30	11.12	13.77	12.89	7.51	6.05
Colliers . . .	42.8	22.10	11.48	13.90	13.21	7.70	6.06
Bricklayers . . .	37.7	22.26	11.57	14.22	13.40	7.82	6.22
Weavers . . .	48.2	22.30	11.59	14.23	13.34	7.75	6.32
Labourers . . .	40.6	22.22	11.45	14.09	13.32	7.78	6.26
Iron-workers . . .	37.0	22.00	11.30	13.96	13.10	7.74	6.19
Professional . . .	39.8	22.27	11.59	14.18	13.35	7.78	6.27
Unclassed . . .	37.9	22.00	11.28	14.00	13.14	7.70	6.22

TABLE VIII.

Form of Insanity.	Percentage of—			
	Heads larger on—			Two Sides Equal.
	Right Side.	Left Side.	Right Side in Front.	
Idiocy	21.05	42.11	34.21	36.84
Imbecility	7.10	67.90	7.10	25.00
Dementia	3.00	84.70	17.00	9.60
General paralysis	3.00	97.00	16.00	
Epilepsy	4.00	92.00	18.90	4.00
Chronic mania	9.20	81.60	9.20	9.20
Acute forms	12.80	76.80	5.50	10.40
Monomania of suspicion	17.30	69.70	8.70	13.00

to what Broca's classification would call sub-brachycephali.

Table II. also shows that the frontal circumference bears a higher ratio to the whole circumference in the insane than in the sane in both males and females.

It has been frequently said that the size of heads increases as one goes north. This is not altogether borne out by the following list of the cranial indices of the head-averages in the eight asylums from which these data are drawn :—

ASYLUMS.	MALES.	FEMALES.
Melrose	50.32	48.05
Cupar Fife	50.22	48.19
Wakefield	49.87	47.55
Morningside	49.83	48.52
Morpeth	49.70	46.75
Sheffield	49.38	46.86
Murthly (Perth)	48.60	47.25
Larbert	47.46	45.91

The last mentioned is an idiot asylum, and so cannot be fairly compared with the others.

Sex.—Male heads are larger than female in all directions, but the most marked difference is in the transverse arch, which shows an average difference in favour of the male sex of 1.30 inch.

The cranial index gives a measure 2.92 inches greater for the male. The various proportions in the two sexes are exhibited in Table II.

The ratio of frontal to whole circumference is, in insanity, for males as 1 to 1.91, and for females as 1 to 1.94.

Age.—The insane head varies in size at different ages.

Table III. gives the various average measurements for both sexes at different ages, and the cranial index shows that the female skull value rises up to sixty years of age, and then declines. The male skull does not exhibit so great a regularity. It reaches its highest value in the sixth decade, after several fluctuations.

The Wakefield male cases are divided into those under and above forty years of age, with the result that those under forty show a higher skull value—viz., 49.917 as against 49.844.

Disease.—The head measurements vary in the several forms of insanity. The Wakefield cases are tabulated, with the following result:—

The last column of Table IV. shows chronic mania to have the highest average skull value, and idiocy the lowest. At the Larbert institution 50 male and 37 female idiots were measured, and give the following averages:—

The cephalic index places the male idiots in Table V. amongst the mesati-cephali and the female amongst the sub-brachycephali of Broca's classification. Ratio of frontal to whole circumference—male, as 1 to 1.92; female, 1 to 1.93.

Two American physicians, Drs. Fisher and Peterson, have written a paper on "Infantile Cerebral Hemiplegia," in which they show that there is a pronounced tendency, in that disease, to diminution in all dimensions of the skull, and say "this is so marked in the transverse diameters as to bring these heads under the class of leptocephalus."

Height.—Head measurements increase with bodily height. The Wakefield men are divided into those of 68 inches and upwards and those under 68 inches in height.

Weight.—The head measurements increase with bodily weight, the cranial index being raised about 0.414 of an inch for each additional 10 lbs. in weight over 100 lbs.

Complexion.—Dark-complexioned men have larger heads than fair-complexioned, the cranial index being for the former 49.98, as against 49.62 for the latter, in an average of 629 cases.

Employment.—The Sheffield men are classified according to the employment in which they were engaged previous to their admission to the asylum:—

The cranial index gives the highest skull value to the professional members and the lowest to the gardeners. Bricklayers and weavers have a high average, and cabinet-makers a very low one. Here the skull value and the amount of intelligence are certainly not commensurate.

Shape of Head.—With the exception of idiots, the insane are not remarkable for asymmetrical heads.

Speaking generally, the outlines met with may be divided into three classes, having the greatest transverse diameter in the anterior, middle, and posterior third of the skull respectively.

The first class, which has been named the "insane type," is composed solely of lunatics, no instance having been met with amongst sane people; indeed, in those of sane mind it is an occurrence of great rarity for the greatest transverse diameter to be found anterior to the central point of the skull.

To the second class belongs the great majority of the insane.

To the third class only a limited number of the insane belongs.

The most common form of head met with is that having its greatest transverse diameter posterior to the median transverse line, and most protuberant, with reference to the long diameter, on the left side.

The most symmetrical heads are those of imbeciles.

Female heads are much more symmetrical than male heads.

The right half of the skull is almost invariably in advance of the left half, the whole side appearing to be pushed bodily forwards, and both its frontal and occipital limits placed anterior to those of the opposite side.

The principal shapes met with may be conveniently grouped as follows, the

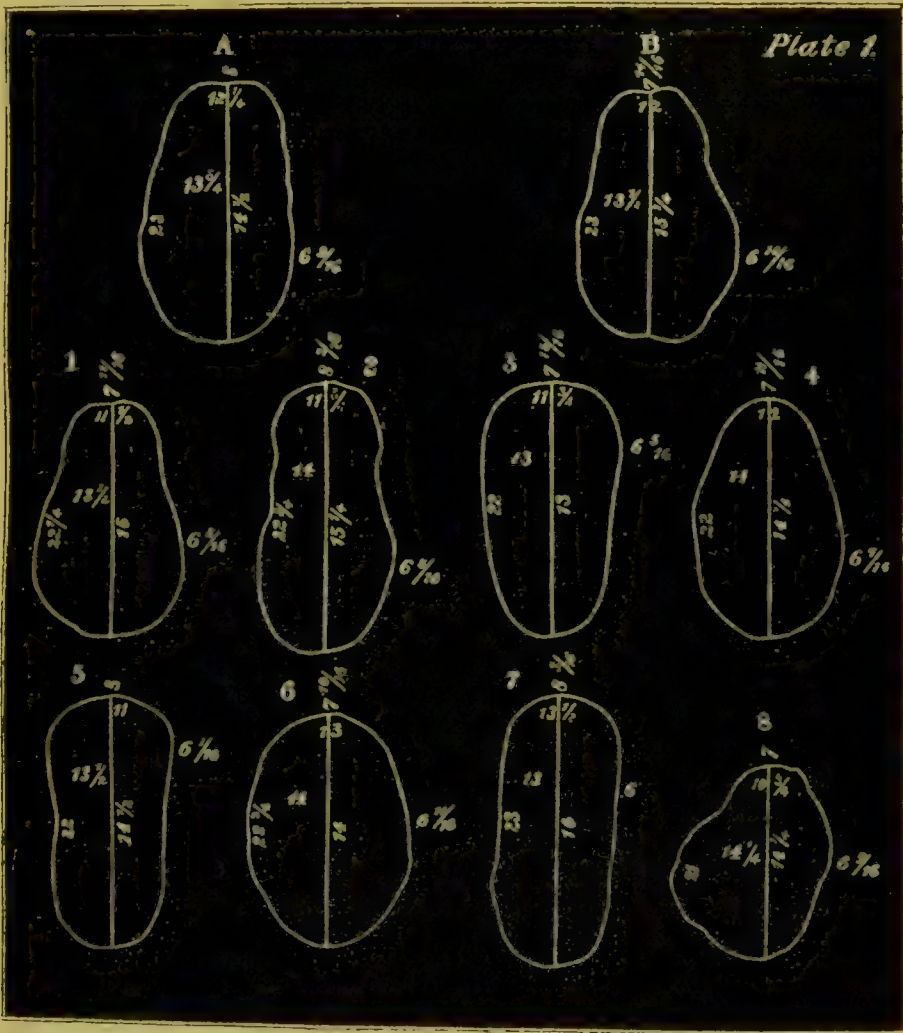
terms used being adopted from botanical nomenclature, and sufficiently explaining themselves, the nose being taken as representing the position of the stalk :—

(1) Pyriform, (2) panduriform, (3) ovate, (4) obovate, (5) cuneiform, (6) rotund, (7) oblong, to which may be added (8) irregular (Pl. 1).

The obovate (4) form is most common amongst males, and the panduriform (2) amongst females. The cuneiform (5) is the exclusively insane shape, and an ir-

ness (B, Pl. 2) amongst idiots agrees with the frequency of left-handedness said to prevail in idiocy. The prevalence of even-headedness amongst idiots and imbeciles is certainly a mark of low type of head; animals are notably even-headed.

Twelve head outlines, taken from inmates of the Darenth Asylum, are contributed by Dr. Fletcher Beach. One, a case of scaphocephalic imbecility, measures in the long diameter 8.875 inches, and in the short diameter 5.125 inches. This gives a



regularity so great as that indicated by irregular (8) is met with only amongst traumatic idiots.

Heads larger on the left side than on the right are common amongst the insane. This condition of left-headedness is present in 81.77 of the Wakefield males, but, as shown in Table VIII, is much more marked in some forms of insanity than in others (A, Pl. 2).

Left-headedness is much more common in males than in females.

The high proportion of right-headed-

cephalic index of 57.74—an immensely long head, and quite beyond anything contained in the foregoing tables. The head in horizontal section is noticeably symmetrical.

Another, a case of hydrocephalic imbecility, has a length of 8.875 and a breadth of 7.312 inches, which gives a cephalic index placing it amongst the sub-brachycephali.

The average cephalic index for the twelve cases is 75.92, which is sub-dolichocephalic.

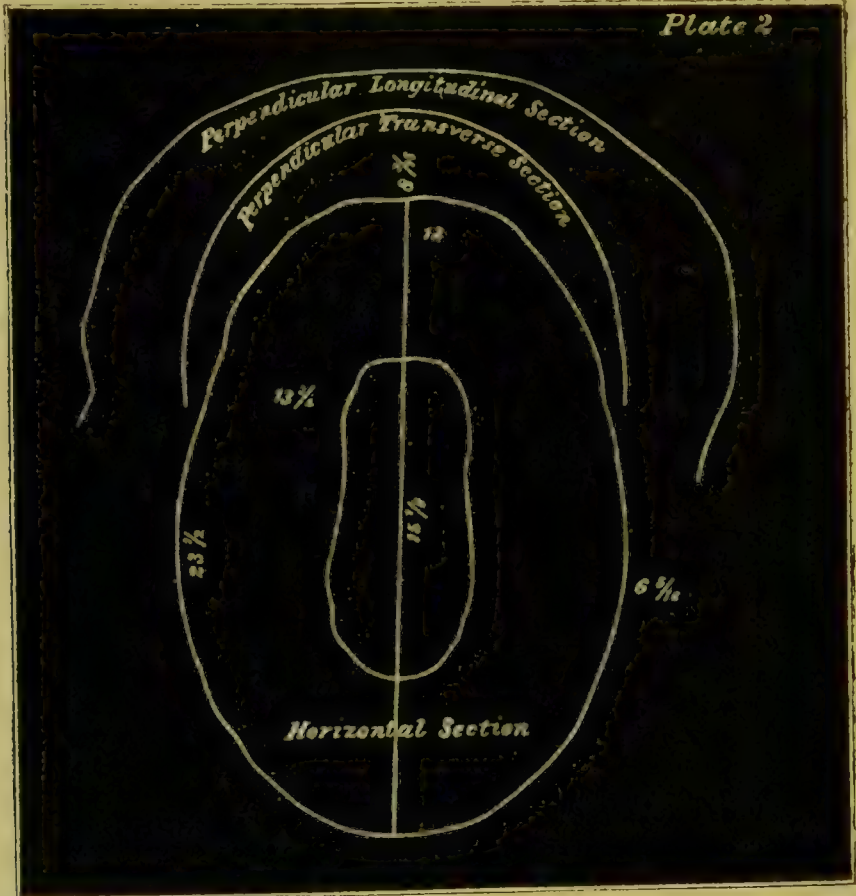
The character of the antero-posterior vertical section in the case of a large number of idiots is a rapid slanting off in front to the vertex, followed by an almost perpendicular descent behind to the nape of the neck, the occipital protuberance being ill-marked or absent. Good illustrations of this feature are to be found in Dr. Ireland's book on "Idiocy and Imbecility."

Drs. Fletcher Beach and Shuttleworth both recognise the ill-development of the occipital portion of the brain in idiots; and the latter, in the *Transactions of the International Medical Congress* (London, 1881), gives a series of four

head, and that of the back of the head, tend to form parallel lines.

The characteristics of hydrocephaly Dr. Shuttleworth gives as "a general ob-ovate appearance of the crown looked at from above, the contour from back to front and side to side being more or less globular, and the greatest circumference being found at the temples, where there is sometimes a perceptible bulging. The back of the head is somewhat flattened."

Of scaphocephalism he says "there is compression of the cranium from side to side, with dolichocephaly and a prominent



The various Sections of the Skull; the small inside line being the reduced head-shape obtained by the use of the *conformateur*.

figures illustrating the cranial contours of microcephalic, Kalmuck, hydrocephalic, and scaphocephalic idiocy.

Microcephalism, Dr. Shuttleworth says, is markedly oxycephalic, with occiput imperfectly developed; and a case he examined into very thoroughly he puts down as being caused by the arrested growth of the cerebral hemispheres backward and downward at about the sixth month of gestation.

Of the Kalmuck type he says "the skull is obtusely rounded, the longitudinal not much exceeding the transverse diameter, and the plane of the face and fore-

ridge in the inter-parietal line and on the middle line of the forehead."

This condition has been referred to a premature closure of the sagittal suture.

CROCHLEY CLAPHAM.

HEADACHE, HYSTERICAL (hysteria, *q.v.*). Headache appearing periodically in the hysterical. There is, as a rule, great tenderness of the scalp, and the pain is usually located in the occipito-frontalis and other muscles of the head, and in certain branches of the fifth pair of nerves. It is often described by the patient as like a nail driven into the head, hence its name *clavus* (*q.v.*). It is

increased as a rule at the menstrual period and by mental worry or trouble.

HEADACHE, NEURASTHENIC (*νεῦρον*, a nerve; *ἀ*, priv.; *σθένος*, strength). A name given by Erb to a form of headache occurring in patients depressed by severe mental or bodily exertion, or by sexual excess. The pain is often of a dull, heavy, oppressive and deep-seated character, and is frequently accompanied by occipital tenderness.

HEARING, EXALTED (*exalto*, I raise). An unduly acute perception of sounds common to many disturbances of the nervous system, both functional and organic.

HEARING, ILLUSORY (*illudo*, I sport with). The erroneous conception by the mind of a sound which is perceived by the sense of hearing. (See ILLUSIONS.)

HEARING, PERVERTED (*perverto*, I turn in an opposite direction). The presence of auditory sensations which are not produced by external impressions in a normal fashion.

HEART, DISEASE OF, IN THE INSANE. (See CARDIAC DISEASE.)

HEBETRENIA (*ἡβη*, puberty; *φρήν*, the mind). A term applied by Hecker and Kahlbaum to the intellectual disturbance occurring at puberty or immediately after. It is more prevalent among girls than boys, and may be hereditary or caused by masturbation or overwork. (Fr. *hébéphrenie*.)

HEBETUDE (*hebetudo*, from *hebetō*, I make blunt). Dulness of intellect, bluntness of the senses. (Fr. *hébétude*; Ger. *Stumpfheit*.)

HEBETUDO ANIMI (*hebetō*; *animus*, the mind). A synonym of Imbecility.

HEBETUDO MENTIS (*hebetō*; *mens*, the mind). Dulness of intellect. Imbecility.

HEDONISM (*ἡδονή*, pleasure, gratification). Mental eccentricity characterised by the following of some special pursuit in an unreasoning manner.

HEIMSUCHT, HEIMWEH (Ger.). The equivalents for nostalgia or homesickness.

HEISSHUNGER (Ger.). A term for bulimia (*q.v.*).

HEMERAPHONIA (*ἡμέρα*, a day; *ἀ*, neg.; *φωνή*, a voice). The loss of voice during the daytime, a phenomenon of hysterical origin. (Fr. *héméraphonie*.)

HEMIANÆSTHESIA, HYSTERICAL (*ἥμις*, half; *ἀναίσθησία*, a want of feeling; *hysteria, q.v.*). Loss of the faculty of sensation in one half of the body occurring in a hysterical person; the loss may be partial or complete; when complete,

ordinary tactile sensation, sensations of cold, heat and pain are all in abeyance, the skin may even be destroyed without causing pain. The loss of sensation extends as a rule up to the median line of the body, and includes the mucous membranes and deeper structures, such as bone and muscle. The means of distinguishing it from paralytic hemianæsthesia are these: ovarian tenderness persists on the affected side, in fact is frequently intensified, reflex actions remain unchanged, and the pupils dilate when the skin is irritated; moreover the fingers of the affected side can still be used, when the eyes are closed or directed away from them, in performing various delicate operations. When partial, sensation may be lost to either pain or touch, rarely to temperature alone. The affection is more common on the left side, and may be permanently confined to one side or shift from one side to the other. The transfer of the anæsthesia may also be "induced" by agents which stimulate the skin and cause capillary dilatation, by the application of metals or magnets. These agents have no special power over the anæsthesia, the action being apparently due to auto-suggestion, since the transference is not effected during sleep or when the patient is under an anæsthetic. The hemianæsthesia may come on after a hysterical seizure or quite spontaneously, and drawing attention to the affected side appears to increase the intensity of the anæsthesia (Gowers).

HEMIANTHROPIA (*ἥμις*, half; *ἄνθρωπος*, a man). An old term for insanity.

HEMIANTHROPOS (*ἥμις*; *ἄνθρωπος*). An old term (used by Joh. Stephanus, Decad. Concil. i., in Oper. p. 297) for a maniac.

HEMIEPILEPSY (*ἥμις*; *ἐπιληψία*, epilepsy). An epileptic attack producing unilateral convulsions, or muscular spasm on one side of the body only.

HEMIHYPERÆSTHESIA (*ἥμις*; *ὑπερ*, excessive; *ἄσθησις*, sensation). The occurrence of hyperæsthesia in one lateral half of the body only, as in some forms of hysteria (*q.v.*).

HEMIPLEGIA, EPILEPTIC (*ἥμις*; *πληγή*, a stroke; *ἐπιληψία*, epilepsy). A term used by Todd to indicate the loss of muscular power in an arm or in the whole side of the body, following immediately upon an epileptic fit. It occurs more frequently on the side which has been most convulsed. (See EPILEPTIC HEMIPLEGIA.)

HEMIPLEGIA, HYSTERICAL (*ἥμις*; *πληγή*; *hysteria, q.v.*). Paralysis of one side of the body occurring in a

hysterical person. The attack usually comes on suddenly, there being simply loss of power without loss of consciousness, convulsions, or other cerebral symptoms. The paralysis does not affect the face or tongue, and on close examination it will be found that though most of the muscles have lost their mobility, some retain their power. After a few days as a rule the paralysis gives place to a paresis. The tendon reflexes are not exaggerated and there is generally partial or complete anæsthesia of the affected parts. The trunk muscles are sometimes involved, sometimes not. There is seldom any affection of the special senses, but the muscular sense may be abolished (Gowers).

HEMISPASM (*ἡμισμός*, half; *σπασμός*, a drawing). A convulsive movement or spasm affecting only one side of the body.

HEPATIC INSANITY (*hepar*, the liver; *in*, neg.; *sanus*, sound). (See SYMPATHETIC INSANITY.)

HERCULEUS MORBUS (*Hercules*; *morbus*, a disease). A synonym of Epilepsy from the violence and strength of the limb-spasms.

HEREDITY.—The subject of heredity has been regarded for generations as having a special bearing upon the occurrence of insanity, and even among the laity it is considered ominous for insanity to exist "in the family." The tendency of late years has been to lay increasing emphasis upon the hereditary factor in the production of insanity, but it is doubtful whether, even yet, the true bearing and significance of this factor has been recognised. In estimating the influence of heredity in producing insanity, regard has been had to the number of instances of insanity that have occurred among the relatives, direct and collateral, of the patient under observation; and hereditary influence has been considered to exist in those cases, and in those cases only, in which a record of insanity has been found among the relatives. A very little consideration will show that this rough-and-ready method is open to several objections, and may easily involve fallacies. The insanity of the relative may have been of a character that, so far as we know, is not, or is but slightly, heritable; as, for instance, general paralysis of the insane. The insanity of the relative and that of the patient under observation may arise from different sources. These objections are, however, comparatively trifling. Much more important is the fact, far too insufficiently recognised, that the factor that is directly inherited is not insanity, but is an instability or disordered arrangement of nerve tissue which allows

insanity to occur; and that we must look for the heritable antecedents of insanity, not alone in insanity itself as existing in progenitors, but in all maladies which display evidence of undue instability or disorder of the highest nervous arrangements. Thus, the nervous peculiarity which exhibits itself as insanity in the offspring may have become apparent in the progenitor, not as insanity, but as epilepsy, as chorea, as hysteria, as "nervousness" and fidgetiness, as somnambulism, or in some other shape.

Lastly, the most important omission of the method of looking for insane relatives is, that even when successfully and completely carried out, even when conducted so comprehensively as to include, not those only who have been insane, but those who have been afflicted with allied maladies, and so have given evidence of allied nervous disorder, it leaves one-half of the field of hereditary antecedents unreaped—it neglects entirely one, and that not the least important, of the two laws of heredity. For the direct inheritance of peculiarities of nerve-tissue is not the only way in which such peculiarities may come into existence through the operation of heredity. It may be that two parents, each of whom is a stable and normally constituted organism, may produce offspring whose nervous constitution is unstable and abnormal. For the production of normal offspring it is necessary, not only that the parents be each of them normal, so that the offspring do not receive inferior tissues by direct inheritance, but it is also necessary that the sexual elements of the parents be suitable to one another, so that the mutual actions and reactions between them may result in a stable, normal, firmly compacted set of tissues composing the offspring. For it is quite possible, and does frequently happen, that a male and a female organism, each of whom is fully up to the average standard of the normal, are nevertheless so unsuited to one another in the character of their sexual elements that when these are brought together they fail to produce offspring; or, if offspring be produced, it is inferior in organisation to the average standard of the race. This is an aspect of the subject of heredity to which, it must be admitted, too little attention has been given by medical psychologists, and which it will behove us, therefore, to examine with the greater care.

The problem of heredity presents itself, therefore, to the alienist in two aspects: First, the direct transmission, not necessarily of insanity, but of peculiarities of

nervous organisation which underlie insanity; and, second, the origination, by the mingling of the parental elements, of a defect in the nervous organisation of the offspring, which does not exist in either parent.

The First Law of Heredity: the Law of Inheritance.—The law of the direct transmission of qualities is simple. It is that the offspring tends to inherit every attribute of both parents. Inheritance is the rule, non-inheritance the anomaly.

That this rule is absolute with regard to the broad general characters of every organism is generally accepted. Every one admits that the offspring of birds will be birds, and of mammals, mammals. So, too, every one admits that the offspring of particular kinds of birds and of mammals will take after their kind; that each species will reproduce individuals of its own species, and each variety offspring of its own variety. When, however, we come down to very minute and trivial characters,* the law appears to become halting and irregular in its application; and when we descend to individual characteristics, the exceptions become apparently as numerous as the conformities. It is needless to say that the exceptions are only apparent, and are due to disturbances in the working of this simple first law of heredity caused by the operation of other and secondary laws. When we remember how trivial are the characters that are transmitted with absolute certainty for many generations through hundreds of individuals, we may be quite sure that there is no character sufficiently minute to escape the operation of the law. There is, for instance, a sub-variety of black pigs, among whose distinguishing marks is the possession of a few white hairs behind each shoulder. Seeing, however, that the exceptions to the regular operation of this law are admittedly numerous, so that, for instance, the offspring of parents of normal organisation become insane, while the offspring of

* When we speak of minute and trivial characters as being those which appear less subject to the strict operation of the first law of heredity, the expression is scarcely accurate. What is meant is, indeed, *recently acquired* characters; or, more accurately still, characters of recent appearance in the race. The more recent the appearance of any character, the more uncertain is its transmission; and, on the other hand, the more numerous the generations through which a character has been transmitted, the greater the certainty of its re-transmission. In coming down through a long line of ancestry, the character seems, like a falling body, to gather momentum, and the further it has descended, and the greater the momentum it has acquired, the less liable is it to be diverted, the greater is its power to overcome any obstacle in the course of its further descent.

parents of unstable nervous organisation escape insanity, it becomes necessary to examine the conditions which produce these modifications of the law.

The first and most obvious circumstance to be considered is that each individual has two parents; and that in so far as the attributes of the parents are contradictory, the offspring cannot inherit from both. The offspring of a white rabbit and a black rabbit may be entirely white or entirely black, but it cannot be both. So the offspring of a parent of stable nervous constitution and one of unstable constitution may have the one cast of constitution or the other, but cannot have both.

It is obvious that where the attributes of the parents are contradictory, there are three possible alternatives as to the appearance of these attributes in the offspring.

(1) The offspring may inherit the attribute of either parent solely.

(2) It may inherit the qualities of one parent in some respects, and those of the other parent in other respects. As, for instance, when the offspring of the black buck and the white doe is piebald; or when the offspring of a father of unstable nervous organisation and a normal mother is unstable in certain parts of its nervous system, or throughout, but to a less degree than its father.

(3) The offspring may inherit the father's attributes at one time of life, and at another time these may be displaced by the attributes of the mother.

In so far as it takes on the common attributes of the race from whence it springs, the offspring inherits, of course, from both parents, and, so far as can be judged, from both equally. It is only as to the residue of attributes, that are special to the parents or either of them, that we can speak of special inheritance from one rather than from the other. As to these special attributes, it may happen that one of the parents possesses the power of impressing upon the offspring the features of his or her own organisation to the exclusion of the features of the other parent. Such a power is termed *Prepotency*. The word is also used in another sense, to characterise the qualities thus transmitted, qualities appearing in some cases to have a faculty of reappearing in generation after generation, and so being properly themselves called prepotent, apart from the individuals by whom they are transmitted. Thus, in some animals certain colours are strongly prepotent, and an individual of that colour will surely transmit the colour

to the offspring. The same colour in other animals is not prepotent. It would appear that, among the attributes that are special to either parent, there is, as it were, a struggle for preponderance in the offspring, and that the prepotent attributes have some advantage which secures to them success in this struggle.

In the case of the quality of undue instability of nervous organisation, supposing that one parent only possesses this quality, the contest for preponderance in the offspring will be between this undue instability and normal stability. Now, seeing that the tendency of qualities to appear in the offspring varies with the length of the line of their transmission in the race, it is evident that, normal stability having come down through a long line of ancestry, and instability having broken out recently and sporadically, the former will have by far the better chance of asserting itself and gaining preponderance in the struggle, unless the latter have acquired strong prepotence. The means by which a quality acquires prepotence are obscure, but it appears that one such means may be the possession of the quality in a pronounced form by one parent, and its transmission in fainter or stronger degree by the other. Here we are introduced to a new phenomenon—the transmission by an individual of qualities which that individual does not himself possess.

Reversion.—This power of transmitting latent qualities is possessed by all highly developed organisms, and is exceedingly important in its bearing on the occurrence of insanity. When an individual exhibits an attribute—*e.g.*, a sixth digit—which was absent in his immediate progenitors, but existed in a grandparent or some more remote ancestor, the individual is said to revert, in so far as that quality is concerned, to the ancestor by whom it was possessed. In such cases, granting, what it is impossible to doubt, that the exceptional attribute was in fact inherited, it is obvious that it must have been transmitted through the intervening generations in which it did not appear. In these generations it was latent. It was written, as Darwin says, in invisible ink, ready to appear on the proper test being applied. One of the tests which is capable of bringing the latent character into actual existence is the union of the individual in whom it is latent with another in whom it exists either latent or patent. Other influences there are which can render manifest the latent qualities, but of their nature we are for the most part ignorant.

Hence, when a person exhibits evidence of the defect of nervous organisation which underlies insanity, he may have inherited that defect from a parent in whom it is patent, from a parent in whom it is latent, or from both parents, in each of whom it existed either in patent or latent form.

Conversely, a parent of defective nervous organisation may or may not transmit his defect to his offspring, immediate or remote. If the defect has attained in him prepotent strength, he will probably transmit it. If, however, it has not attained prepotency, and he unites with a female of normal organisation, the superior momentum of the quality of longer descent—the normal—will tend to breed out the quality of more recent acquisition. If he unite with a female in whom the defect, either patent or latent, exists, the tendency to appear in the offspring will be greater; but even in this case the superior force of the long descent of the normal will tend to nullify the defect, and the offspring, or some of them, may be entirely free from it, at any rate in its patent form. In such a case, however, the offspring will be nearly sure to possess the defect latently, and, if they unite again with defective individuals, there will be a strong tendency for the defect to become once more apparent.

Attributes tend to appear in the offspring about the same time of life at which they appeared in the parents, and this is especially true of attributes that have been recently acquired. It is not merely the successive changes of development to which this rule applies, but to other characters, and, what is important from our point of view, to physical and nervous defects. Thus, in the family of Le Comte, blindness was inherited through three generations, and no less than twenty-seven children and grandchildren were all affected about the same age. This rule is certainly true in some cases of insanity. Piorry tells of a family every member of which became insane at the age of forty. Esquirol relates a case in which the grandfather, father, and son all committed suicide when in or near their fiftieth year. It is evident that the operation of this law may explain many an apparently causeless outbreak of insanity.

The principle just considered is liable to variation in two directions. When an attribute that has been recently acquired is becoming more firmly fixed in the organisation of the race, it appears at an earlier age in each successive generation. On the other hand, such an attribute sometimes occurs later and later in each

successive generation, and is then obviously in course of disappearance. It is notorious that the purer the race—that is to say, the longer the special attributes of the race have been, and the more accurately they are, transmitted—the earlier in the life, independent or embryonic, do those attributes become apparent. In the case of species which have descended from a common ancestor—*e.g.*, golden and silver pheasants—the generic features are present from the egg, but the full plumage of the species does not appear till the second or third year. So with bodily defects. It is well known that gout rarely appears before thirty years of age, except in hereditary cases; and the more confirmed the hereditary tendency to gout, the earlier the age at which it appears. The same is true of cancer. In one family the mother became blind at thirty-five, her daughter at nineteen, and three grandchildren at thirteen and eleven. Cases have been recorded showing a similar advance in the age at which insanity occurs. It is obvious that when insanity exhibits this tendency to become fixed in the family, it is criminal in the members of that family to have offspring.

When, on the other hand, the insanity occurs later and later in the lines of successive generations, it is obvious that the malady is in course of disappearance, and that the objection does not apply so forcibly.

Each parent has a certain degree of prepotency as to the offspring of his or her own sex, so that the sons tend to inherit chiefly from the father, and the daughters chiefly from the mother; and this is especially true of those attributes which appear somewhat late in the lives of the parents—that is to say, after the reproductive functions become active. Thus, the hæmorrhagic diathesis is often transmitted to males alone. This peculiarity is so marked that in some families scarcely a single male arrives at maturity. In the Lambert family, known as the "porcupine men," the skin disease was transmitted for four generations, and was strictly limited to the male sex, seven sisters in one of these generations being free from the defect. Colour-blindness is much commoner in males than in females, but in one instance, in which it first appeared in a female, it was transmitted through five generations to thirteen individuals, every one of whom was a female. It is common to see families, the offspring of a tall father and a short mother, in which the sons are tall and the daughters short; common also to note that the sons and daughters inherit the mental qualities of their respective parents of the

same sex. It is probable that the investigations that are now being made to that end will show that the tendency of the defective father is to transmit his tendency to insanity to his sons, and that of the mother to her daughters.

It is one of the many remarkable anomalies of the first law of heredity that it occasionally happens that the foregoing principle is reversed, and that the attributes of a parent are sometimes transmitted to the children of the opposite sex only. It is common in the transmission of the hæmorrhagic diathesis, which is strongly heritable, for the children of the affected individual to escape altogether. All the children of the sons and the female children of the daughters also escape, but the sons of the daughters are commonly affected.

The second possible alternative in the inheritance of individual qualities is that the offspring may inherit in part from each parent. This is the most frequent case, and is susceptible of division according as the qualities of the parents are blended intimately, so that those of the offspring are, as it were, a compromise or average between them; or as the qualities of the one parent prevail in one part of the offspring, and those of another in another part. Instances of what is meant are afforded by the colouring of animals. A black mother and a white father may produce an offspring of intermediate tint, as in mankind, the qualities of the parents being inextricably blended; or, as in rabbits, the offspring may be piebald, the qualities of the father preponderating in one patch, and those of the mother in an adjacent patch. So, in the same way, the offspring of parents, one of whom only has an unduly unstable nervous organisation, may be throughout of a less degree of instability than the defective parent; or the nervous organisation may be stable in some regions and unstable in others. Here we see an explanation of the fact, previously noted, that parents who are hysterical, epileptic, or otherwise defective in nervous organisation may have offspring who become insane, or *vice versa*, the explanation being that, in the struggle for preponderance between paternal and maternal attributes, the defective (say) paternal attribute has been able to assert itself, but not in the corresponding region affected in the father. So a piebald buck and a white doe will have offspring that are piebald, but with markings different from those of the father. The same principle affords an explanation of the insanity of the offspring being of a different form from that of the parent.

The third alternative in direct inheritance is that the qualities of the one parent may preponderate at one period of life, and those of the other at another. Instances of this occurrence are familiar to all breeders of stock. The offspring of fowls of different breeds frequently exhibit an alteration of character at each moult, approximating first to one and then to the other parent. So calves, the offspring of a red and a black parent, are not infrequently born red, and subsequently become black. It is obvious how readily the application of this principle will afford an explanation of certain outbreaks of insanity that appear to arise spontaneously and without immediate exciting cause.

The Second Law of Heredity, the Law of Sanguinity, is in its application to the occurrence of insanity at least equal in importance to the first. It is this:—*The quality of organisation of the offspring depends on the suitability of the parents to each other.* Apart from inheritance, the completeness of organisation of the offspring is a product of three factors—the quality of the germ, the quality of the sperm, and the suitability of the one to the other.

It appears that to the making of offspring, which is their common product, the germ brings matter and the sperm brings force. The germ contributes mass, and the sperm contributes the energy which infuses the mass. Each organism develops, *ab ovo*, from a certain quantity of matter; and the development of the minute and simple ovum into the adult of a more than millionfold mass and complexity takes place under the impulse and guidance of the forces which the impregnated germ contains.

While, as has been said, it is the part of the germ to supply the matter and of the sperm to supply the force which animates the matter, yet the division of functions is not absolute, for it is evident that the sperm does supply a certain small portion of matter, and the occurrence of parthenogenesis is proof that in the germ before impregnation resides a certain quantum of developmental energy. Although the human female is not as a rule parthenogenetic, yet the changes that take place in the germ before impregnation show that it does possess (as, indeed, to be a living product, it must possess) a certain store of energy which contributes, in some degree, to the developmental progress of the embryo.

That the amount of this stored-up energy varies in different cases is shown by the varying extents to which the germs

of different animals progress before impregnation. In some the progression is as far only as the extrusion of the polar globules; in others, the process goes on to segmentation; in others, a more or less imperfect embryo is found; in others, again, a separate living offspring is parthenogenetically produced. If such wide variations exist among organisms of different classes, variations of much less gravity, we may be sure, exist among individuals of the same genus and species; nay, the observation of a single family assures us that the germs of the same individual female differ from one another in the amount of development that they are capable of assuming under the stimulus of sperms from the same male. To produce an offspring that reaches the full normal bodily and intellectual standard of the race, the germ from which it starts must be of good quality—must be normally constituted, not only as to the amount and quality of the matter that it contains, but as to the degree to which this matter contains energy in store.

While the germ possesses a certain modicum of energy, necessary to keep it alive and sufficient to carry it for the first step or two in the path of development, the main impetus which serves to carry it to such a prodigious distance along that path as is reached by the adult organism, comes undoubtedly from the sperm. It is upon the union of the sperm that the first real start is made, and that the halting and feeble advance of the germ is hurried into a vigorous rush of development. Since by far the greater part of the developmental impulse comes from the male, it is evident that upon the quality of the sperm depends very largely the issue of the process. If the impulse is one of normal vigour, and is given to a normally constituted germ, the process of development will proceed to a normal extent, and the offspring will be normally constituted; but if the germ be of so sluggish a nature that the influence of the sperm is not sufficient to vivify it, or if the germ be normal, but the impulse given by the sperm is feeble and inefficient, then the process of development will fail before reaching completion. The impetus given by impregnation will die away before development has proceeded to its full extent, and the resulting organism will be defective.

What will be the effect, and what the evidence, of such a premature failure of the developmental forces? The failure may exhibit itself in one of three ways. The defect may lie with special emphasis upon the structure of the organism, or it

may show itself chiefly in the forces that vivify the structure, or it may be distributed between both. When the structure alone fails to reach the full standard of development, the defect may be universal, and the organism may be stunted in size—a dwarf. More often the defect is local, and there results some local deficiency—hare-lip, cleft palate, ectopia vesicæ, imperforate anus, or what not. When the defect is in the forces alone, the organism attains to completeness of structure, but it comes to a premature end from deficiency of the forces to animate the structure. It dies young; dies from no disease, but from sheer inability to live—inability of its own inherent forces to sustain it against the friction of time and circumstance. Death may occur from old age at fifty. More commonly such individuals do not attain adult age; their feeble powers fail to support them against trifling attacks of disease, and they die young. If the defect is greater still, they do not attain independent life. The impetus fails while they are still *in utero*, and they are stillborn or aborted.

With such failures of development we as alienists have not to do except in so far as their consideration furnishes us the means of locating precisely the defects with which we have to deal. It is when both structure and powers are deficient that the defect falls within our province, and what the resulting defect is we have now to see. When the impetus that carries forward the development of the unfolding organism fails prematurely, so that neither in structure nor in vigour does the organism attain the standard of the race to which it belongs, where shall we look for the main evidences of the failure? When an arrow is shot at a mark, but the bow is pulled too feebly, what is the part of the distance that the arrow fails to traverse? Surely the last stages. And when the impulse with which the organism starts on the course of development is insufficient to carry it to completion, it will be the last stages of development that fail. What are these last stages? One of them we have already seen—the attainment of the full bodily stature. The individual will be dwarfed in *size*. Next, he will fail to attain to the full *complexity* of organisation. The last, the supreme, the most lately acquired racial characters will fail to appear. In the human organism these characters reside in the highest regions of the brain. It is the highest mental faculties that are the last to appear, that are the most complex and elaborate, that are the supreme attribute of the unfolded

organism, that are the latest acquisition of the race. It is these characters that fail to appear if the developmental impetus is deficient, and the result of such deficiency is weakness of mind, imbecility or idiocy, according to the extent and degree of the deficiency.

The deficiency in structure is seen in the stunted size and in the defective mental qualities; but the forces of the organism are also deficient; and hence in idiocy we find, in addition to the small frame and limited mental power, feebleness—feebleness of muscular power, feebleness of resistance to adverse influences. Hence it is that so few idiots live to advanced age. If there are exceptions to this rule, if there are idiots who attain full stature and great bodily vigour and who live to advanced age, as undoubtedly there are, it is because in them the idiocy, the premature arrest of the development of the brain, does not arise from failure of the developmental impetus from its own inherent weakness, but from violent arrest due to some influence acting from without, to violence to the head at or after birth, to inflammation of meninges in early life, to the effect of exanthemata or other external action.

To go one step further back and inquire the causes of this weakness of germ or sperm which results in insufficient impetus being given to the process of development. It has been recently held that, since at a very early stage in the development of the germ, a cell or group of cells are separated off to serve as developmental elements, to form the germs or sperms of the individual then in course of development, therefore, changes taking place in the general frame of the individual, in the somatic cells of the body, will have no effect in producing changes in the developmental cells. To this view the experience of alienists lends little countenance. It is undoubted that a feeble father will as a rule have feeble offspring, even although the grandfather of this offspring was hearty and vigorous. It is undoubted that temporary feebleness of parents, as, for instance, that produced by exhausting illness, is the occasion of a permanent feebleness of constitution in offspring conceived or begotten during that temporary feebleness.

Apart, however, from the vigour of constitution of either germ or sperm, the vigour of the developmental impetus which the one receives from the other depends largely upon their *suitability* to each other. The germ may be vigorous, as shown by the vigour of offspring begotten by other males. The sperm may

be vigorous, as shown by the vigour of offspring begotten on other females; but if the two be unsuited to each other, the product of this vigorous sperm on this vigorous germ may be a puny stunted idiot.

In determining the mutual suitability of individuals for the production of well-organised offspring, the first and most important element is the element of kinship, or physiological similarity. For the production of offspring there must be a certain degree of kinship between the parents, but the kinship must not be too close. There is a certain degree of kinship which is the best possible for the production of well-organised offspring; and according to the extent to which the parents are either less or more akin than this, the organisation of the offspring is inferior.

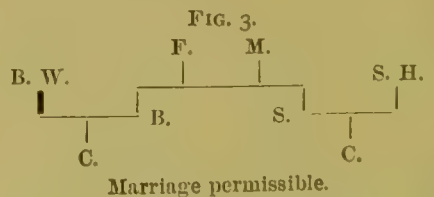
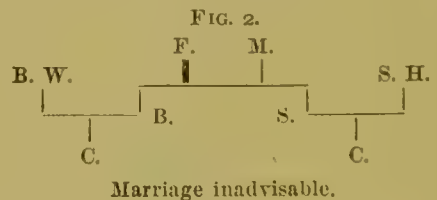
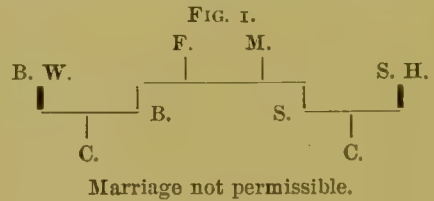
That a certain degree of kinship is necessary for the production of offspring does not need proof. Birds do not breed with mammals, nor amphibians with fish. The parents must be of the same class, order, and genus, but when they are divided by specific differences only, they may, in some cases, breed. Hybrids are always, however, defective in organisation, and it is not until the kinship reaches the closeness of specific identity that offspring of average organisation is produced. Within the bounds of the species there is room for innumerable degrees of propinquity between the individuals that compose it; and among these degrees there are certain which are the most favourable for the production of offspring of good quality, while, as these degrees are receded from, the offspring deteriorates in one respect or another.

When the degree of kinship between the parents becomes too close, the offspring deteriorates in every respect. It is of diminutive size, it is defective in intelligence, it is so delicately constituted as to be extremely obnoxious to the attacks of disease and to the influence of unfavourable circumstances. When the kinship of the parents is closer still the offspring perishes, soon after birth, from pure want of "vitality"—that is to say, for want of a sufficient store of energy to carry it forward in the path of life and development. With a still closer kinship, the fruit of union fails at a still earlier stage, and no living offspring, or no offspring at all, is produced.

For these dire effects to be produced the kinship between the parents or would-be parents must be very close indeed—must be closer than ever obtains in the human race, except in very extraordinary circumstances. It is not until the same father has paired with his own daughter, grand-daughter by his daughter, and so on for

several generations, or until brother and sister, the offspring of brother and sister, have similarly continued their race, that the union becomes altogether infertile; but short of complete failure of offspring, defects in offspring appear at a much earlier stage of inbreeding, and it is with these defects that we as alienists are chiefly concerned.

Practically, for us the question of inbreeding reduces itself to the marriage of first cousins. To the question, Is such a marriage physiologically permissible? no universally applicable answer can be given. The answer must depend upon the circumstances of each individual case, and must be determined by two considerations: one belonging to the law that has already been discussed, the other to the law that is now being dealt with. The first consideration is whether, in the family common to both cousins, there is an inheritance of insanity. If there be, and if the inheritance is from a near ancestor—if, for instance, it is from one of the common grandparents—the union should, under almost all circumstances, be forbidden. If there is no inheritance of insanity in the common family, but near inheritance in each of the separate families, the union should be forbidden. If there is no inheritance in the common family, and near inheritance in one only of the separate families, the kinship alone need be no bar to marriage. The three cases are indicated by the diagrams below, the thick line indicating the existence of insanity in the individual that it stands for—



F. Father. M. Mother. B. Brother. S. Sister.
C. Cousin. B. W. Brother's Wife. S. H. Sister's Husband.

Apart from the question of inheritance, the marriage of cousins is occasionally attended with evil results on account of the nearness of kinship between the cousins. Ordinarily, first cousins are not nearly enough related for their offspring to be considered inbred, or to suffer from the consequences of inbreeding; but occasionally it happens that some strain of ancestry is strongly prepotent in the common family, and that both the cousins take so strongly after some common ancestor as to be nearly enough allied in physiological character for their offspring to suffer from the propinquity.

The result of this and of all other forms of inbreeding is that diminution of the vigour of the developmental impetus which has already been treated of, and in this case the want of vigour of the process—sperm and germ being supposed each to be of normal vigour—has its origin in the deficiency of difference between the two. How this deficiency becomes influential may be seen by the following consideration:—

The size of the germ appears to bear no relation to the size or complexity of the adult into which it develops, the germ of a frog, for instance, being much larger than that of a whale. Hence, if it were possible to double the size of a germ by adding to, or incorporating with, it a quantity of matter precisely similar to, and equal in bulk with, its own, there is no reason to suppose that we should by that means in any way expedite or assist the process of development. Even if the added matter were to be of the shape and structure of a sperm, it would have no effect if it were of the same constitution as the germ to which it was added. In order to deliver the impetus necessary to set going the process of development, the matter which is added to the germ must be distinctly different in constitution. If the matter were derived from the same individual—if, for instance, two germs from the same mother were to unite—the effect would be *nil*. The same would be the case if the mother gave origin to sperms as well as germs—were truly hermaphrodite. And the reason of the failure of a germ, so fertilised, to develop would be the too great similarity of the sperm. When animals have been closely inbred for several generations, the constitution of their tissues becomes closely approximated. The sperm of a male becomes closely similar in constitution to the germ of his sister, and the union of the one with the other fails to give due impetus to the process of development. That process may die away in its early stages, so

that no offspring is produced, or if offspring do result, yet development does not proceed to its full extent, and the offspring is idiotic.

Although the sperm is unsuitable to the germ if there is too great a similarity between them, yet, on the other hand, they are equally unsuitable if they are not similar enough. From individuals too dissimilar no offspring can be produced, and when the dissimilarity is somewhat less than this, so that offspring is produced, yet, unless the similarity is close enough, the offspring will be inferior—will be defective in some respects. One of the most frequent and striking of the defects so occurring is the loss of fertility in the offspring, but with this we are not concerned. Other consequences are important to the alienist.

The impetus that is given to the germ at impregnation depends, as we have seen, very largely upon the amount of difference between the sperm and germ. When the sperm is very widely different from the germ the impetus given is extremely vigorous, and from this it results, (1) that development proceeds very rapidly, and (2) that it proceeds far—that is to say, the offspring becomes very fully and completely developed. Consequently, we find that cross-bred organisms, both animals and plants, (1) grow very rapidly, and attain their full size and maturity at an earlier age, (2) grow to a larger size, and (3) attain a higher stage of development, than pure-bred organisms.

This superiority is not, however, gained without corresponding disadvantages. If the development is more rapid, it shares the defect of all rapid growth in the result being unstable. If a higher stage of development is attained, so that the superior nerve regions reach a greater complexity and elaborateness of structure, this greater complexity and elaborateness carries with it a greater obnoxiousness to disordering influences, a greater liability to become disordered; and, when this more complex structure is developed at a more rapid rate, the tendency of the structure so formed to fall into disorder becomes additionally pronounced.

Hence we find that the offspring of somewhat too dissimilar parents develop rapidly, attain early to a high degree of intelligence, and are prone to disorder of the structures last developed—of the highest nerve regions. Ordinarily, among persons of the same race it cannot be told with confidence whether any pair is more than usually dissimilar, but we can see by the rate of development whether the germs have received at starting a more

than usually sudden developmental impetus, and can infer, if this be so, that the result will be unstable. Hence we are prepared to expect disorder of the higher nerve functions in unusually precocious children.

Besides the element of kinship, there are other circumstances, at present unknown, which govern the suitability of the male to the female element. It has been abundantly proved in the lower animals that certain females that are fertile with other males, fail to conceive to males that are potent with other females. That this occurs also in the human race is extremely probable; and if we imagine a less degree of this unsuitability, so that while offspring do not fail altogether, yet they fail to attain completeness of development, we shall see another occasion of the production of idiocy.

CHARLES MERCIER.

[NOTE.—For article on Hereditary Syphilitic Disease of Brain, see *SYPHILITIC*.]

HETEROREXIA (*ἕτερος*, different; *ὄρεξις*, appetite). Alibert's term for a depraved appetite. (Fr. *hétérorexie*.)

HIDDEN SEIZURES. A popular term for obscure encephalic or spinal attacks of an epileptoid character.

HIERONOSUS (*ἱερός*, holy; *νόσος*, a disease). The holy disease; an old name given by Linnæus to epilepsy. It is also applied to chorea and convulsive affections generally.

HIPPANTHROPY (*ἵππος*, a horse; *ἄνθρωπος*, a man). A form of insanity in which the patient imagines himself to be a horse (Fr. *hippanthropie*).

HISTRIONIC MANIA (*histrionicus*, relating to a player, from *histrion*, a player; *μανία*, insanity). A species of insanity in which the patient poses and struts like an actor, talking in a pompous declamatory tone. (See *DRAMATISM*.)

HOLLAND, Provision for Insane in.—The Napoleonic Code of laws, introduced into Holland in 1811, contained no clause relating to the admission of lunatics into asylums; legislation, in fact, went no further than the formalities to be observed in order to place inmates of asylums under interdiction. The first attempt at legislation was made during the reign of William I. (1813–1840). This king issued a decree, by which the intervention of judicial authorities was made compulsory in case relatives requested admittance for a lunatic. The weal or woe of the patients was altogether lost sight of, inasmuch as the royal decree only considered the public peace. The Act says that tribunals shall be authorised to confine such persons in a workhouse

who are unfit to live in society on account of lunacy, dissipation, excesses or other misconduct, either when relatives make the request or at the demand of the officer of justice. Another article decided that, before granting the request of relatives, the officer of justice was to be heard. A third decreed that such authorisation was not to exceed the term of a year; while the fourth allowed of appeal to the high court of justice.

As may be seen by the first article, the decree was issued before Pritchard and Haslam had proved that as there is an insanity of ideas so there is an insanity of acts.

The king did more; in 1816 he ordered a census to be taken of idiots and those of unsound mind. The result was that 1259 persons were returned as insane, while the population of the northern provinces amounted to 2,000,000. There can be no doubt that these figures were exceedingly inaccurate. However, inaccurate as they were, the census had the good result that a royal decree of 1818 decided that such asylums as were found fit for the proper treatment of lunatics should be allowed to remain, while the unfit should be suppressed. It is a matter for regret that this decree should never have been carried out. The old state of things which the census of 1816 brought to light remained. It had appeared that the insane were only partly inmates of asylums, several of them being detained in prisons, in workhouses, hospitals, almshouses or in private dwellings.

Another census, in 1825, showed that, whilst the population amounted to 2,254,000, the number of insane was 868 males and 960 females, a figure far below the truth. Those 1828 patients, it was further found, lived in 47 different places; of these, 23 were lunatic asylums.

It was then decided to thoroughly reform things, and to erect six large asylums. The buildings were to be made in the form of a semicircle, with wards built externally like the spokes of a wheel. It is unfortunate that the political circumstances of 1830 put a stop to the execution of these plans, and that afterwards they were forgotten. The man who gave the great impulse towards serious improvement in the treatment of the insane was Schröder van der Kolk. He had been elected on the board of governors of the Utrecht asylum, and he was indefatigable both in persuading his fellow-governors to improve the asylum, and in proclaiming the sad state of things to the authorities and the public. His rectoral address (1837), "Oratio de debita

cum infantam maniacorum sortem emendandi eosque sanandi in nostra patria nimis neglecta," greatly contributed to this end. It certainly did much to further the promulgation of a lunacy law—a law which undoubtedly was not a complete one, but which certainly suppressed a great many abuses, and tended to bring curables under an appropriate and earlier treatment.

This law was passed in 1841. It began with a definition of insanity, calling those persons of unsound mind who had partly or entirely lost the free exercise of their mental faculties. This insufficient and misleading definition has been left out in a subsequent law.

The existing asylums were divided into asylums for curables and for incurables. No new asylums for incurables were to be built. There were to be regular inspections, and those asylums which were considered unfit were to be suppressed.

Admittance was subject to authorisation by the officers of the law, authorisation to be granted only for a year. At the end of such period the asylum physician was to give his report, and elaborate reasons why such a person should be kept in the asylum for another year. It may suffice to point out a few omissions in the law. No regulation had been made as to who was to visit a new asylum when necessary, nor had the case been considered that a lunatic might request his own admittance; lunatics not inmates of an asylum were not protected by inspection; the local authorities might confide any number of insane patients to one physician; changes in the buildings and the grounds might be made without the sanction of the inspectors; and, lastly, the law ordered any patient who had been an inmate during three years to be placed under interdiction.

Schröder van der Kolk himself was the first Inspector of Asylums in Holland.

The natural result of the new law was that several so-called asylums were suppressed, and that the others seriously set to work to carry out such improvements as the inspector suggested. As, however, van der Kolk was only adviser, several of his suggestions were not carried out, especially whenever they proved to be a great drain upon the financial resources of the asylum. There can, however, be not the least doubt that an era of humane treatment opened upon the insane by his unceasing efforts.

Only one province (North Holland) at once resolved to build a large new asylum. For this end a country seat near Haarlem was bought, and a handsome edifice was

built. The other provinces, availing themselves of the omission already mentioned, took no steps in this direction.

The faults and defects in the law, of course, were only felt after it had been in operation some time, and it was not till after a lapse of forty-four years that a new law, the one now existing, was passed—in October 1884.

The definition of insanity was left out, and it is a sad thing to see that some people are actually clamouring to have such a definition re-inserted; it is only just to say that the wish is not expressed by alienists, but by men wholly unacquainted with mental medicine.

Another improvement was introduced by suppressing the compulsory interdiction.

A modification was made in the legal formalities: whilst formerly the tribunal authorised relatives to get their insane admitted into an asylum, this power was now transferred to the justices of the peace.

It was a grave omission in the former law that lunatics non-resident in asylums should not be protected by the law, and the new one enacts that persons taking charge of lunatics shall acquaint the local authorities within one day. Such notification need not be made if the lunatic is treated in his own dwelling or in that of his parents, unless it may be found necessary to apply restraint.

When it is necessary to have a lunatic admitted into an asylum, the first thing to be done is to have such a person examined by a physician. This medical man then draws up a certificate, in which he declares the person to be insane, and in which he is obliged to give elaborate reasons why he draws the conclusion. This document is to be produced before a justice of the peace, who, feeling satisfied that admittance is necessary, authorises his admission. In case of doubt the justice may either order a new medical examination, or, what is worse, he may examine the person himself.

In urgent cases the burgomaster may order an immediate admission, or he may place a dangerous person under custody.

Once admitted, the asylum physician takes his daily notes, and at the end of three days sends a copy to the tribunal.

At the end of a fortnight he sends another copy of daily notes, together with his conclusions, to the same tribunal, and this judicial body then authorises the insane to be detained in the asylum for a year.

During the first six months the physicians are obliged to take weekly notes of every case; afterwards, monthly notes are obligatory.

The asylums are subject to two inspections: one is made quarterly by the officer of justice accompanied by the officer of public health, the other takes place at least once a year by the two Inspectors in Lunacy.

A register is kept in every asylum, in which every patient is immediately inscribed. It contains: (1) the number; (2) names, social status, &c., of the patient; (3) name of the person who requested the admittance; (4) a short account of the documents produced; (5) the dates of the several authorisations to prolong the stay in the asylum; (6) the date of admission; (7) date of end of authorisation; (8) date of leave of absence and date of return; (9) certificate of physician as to recovery; (10) date of decease, recovery, or transfer to another asylum.

This register is to be laid before the inspecting authorities whenever they wish to see it.

A register is likewise to be kept in which every case of bodily restraint is to be entered.

Whenever relatives apply for the discharge of a patient whom the asylum physician considers dangerous to the public peace, such discharge may be refused on the production of a certificate showing that release cannot be effected without danger of disturbance of public order or of accidents.

A royal licence is required for establishing a lunatic asylum. This licence shall not be granted unless the following conditions are complied with:—A roomy, healthily situated building, with adequate provision for exercise in the open air; separation of the sexes, excepting children under ten years; sufficient provision for separating the lunatics according as their character and number may render expedient; adequate medical attendance and domestic service, the minimum of physicians and the maximum of patients to be fixed by the royal licence.

Article 11 orders the opening of new asylums when necessary. It says:—In cases where no provision has been made in any other way for the establishment of asylums for the reception of lunatics residing permanently or temporarily in a particular province, the administrative authority of such province shall, either separately, or in concert with the authorities of other provinces, provide for the establishment and maintenance of asylums fulfilling the requirements of this law.

The Netherlands now possess the following asylums:—The State lunatic asylum at Medembliih, which now contains 245 males and 245 females. Originally meant to contain only those patients whose

maintenance had to be defrayed by Government, the Minister for the Interior afterwards allowed pauper lunatics from different communities to be received there, and thus afforded a temporary relief to the overcrowding in a couple of asylums. The medical staff consists of three physicians.

The "Meerenberg Asylum," near Haarlem. The buildings lie in a pleasant park, and a great deal of open-air exercise can be given to the inmates. A royal decree allows 600 males and 617 females to be received, while the number of physicians has been fixed at 7.

The asylum at the Hague, for 220 insane. Two physicians visit regularly. This institution is insufficient for the wants of the Hague, which has a population of nearly 200,000 inhabitants.

The asylum at Delft, with 320 inmates (161 males and 159 females), with two physicians.

The asylum at Dordrecht, containing 106 males and 94 females, two physicians.

Rotterdam has a small asylum, having 150 inmates (60 men, 90 women). As this number is far below the actual figure of lunatics for a place like Rotterdam, with upwards of 200,000 inhabitants, the municipal authorities have decided to close the asylum altogether. Rotterdam will then send its insane to other asylums, as the town does not wish to spend a large sum in extending the present building, or in making a new one on another site outside the town. Two physicians are in charge.

The province of Friesland has only one asylum, at Franeker, which is to contain 130 males and 150 females, while the medical staff is to consist of at least two physicians.

The insane belonging to the province of Overijssel are received at Deventer. The authorities have resolved to build a new asylum in a handsome wooded park, the property of the asylum. Pecuniary considerations, however, still delay the execution of this excellent plan.

Guelderland contains two asylums—one at the town of Zutphen, the other at the village of Ermelo.

The former has 450 inmates (245 males and 205 females) who are attended to by three physicians.

The latter is situated in a lovely spot. The asylum, bearing the name of "Veldwyk," is built on the cottage system, each cottage containing from 10 to 20 inhabitants. The number of patients already amounts to 200; two physicians perform the medical duties. This asylum was built by a religious corporation—the Christian Association for the Treatment of the Insane.

The province of Limburg has an asylum at Maastricht, its capital. It forms part of the town hospital, and contains only about 80 beds for lunatics. The physicians attached to the hospital see the insane daily.

The province of North Brabant has as many as four lunatic asylums.

One of these, situated in the village of Boekel, is the property of a monastic order, and receives men only (125), while the local physician visits the inmates.

The "Coudewater" asylum lies in the village of Rosmalen, at a short distance from Bois-le-duc. There are three resident physicians, who take charge of the inmates, numbering 280.

The asylum at Bois-le-duc is in charge of three physicians, and is licensed to keep 301 males and 241 females.

At a short distance from Bois-le-duc in the lovely village of Vught, a large asylum was built in 1889, which is licensed to admit 400 males and 400 females, whilst the royal decree has fixed the minimum number of physicians at four.

Utrecht possesses an asylum containing 420 beds—222 for males and 198 for females. Four physicians, one of whom is Lecturer on Mental Diseases at the university, are entrusted with the medical duties.

Part of the Jewish hospital at Amsterdam is used as an asylum for lunatics of the Hebrew persuasion, and contains only 108 patients (43 males and 65 females). This being the only Jewish asylum in the country, it is altogether insufficient to receive all patients applying for admission. Plans are being prepared to build a new asylum in the country large enough to meet the requirements of the whole Jewish community in the land.

There are only two private asylums—one at Haarlem, containing 10 females; the other at the village of Gorsel, containing only 4 males.

New asylums are urgently required in different provinces, and it is a matter of regret that the provincial authorities, who are to carry into effect the law which makes the erection of new asylums a matter of provincial interest, are over-cautious in performing these duties.

Non-restraint is spreading more and more. Meerenberg was the first asylum where the system was thoroughly carried out; it is now fully introduced at Utrecht, Dordrecht, Zutphen, and Medemblik, whilst mechanical restraint is reduced to its minimum at the others.

Until the introduction of the present law in 1884 a regular census of persons of

unsound mind not living in asylums had not been taken.

The following figures relate only to the inmates of the different asylums:—

—	Males.	Females.	Total.
January 1, 1882	2138	2320	4458
" 1883	2216	2379	4595
" 1884	2286	2414	4700
" 1885	2337	2434	4771
" 1886	2565	2564	5129
" 1887	2652	2688	5340
" 1888	2805	2853	5658
" 1889	2906	2940	5846

It is thought that about 3000 lunatics, a figure undoubtedly below the real number, are not inmates of asylums, so that the total number would be about 9000, and, taking the population to be 4,500,000, the ratio would be as rather more than 2 insane people to 1000 inhabitants.

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[References. — Reports by the Inspectors in Lunacy. The laws on Lunacy and Lunatics, May 29, 1841, and April 27, 1884.]

HOME-SICKNESS. (See NOSTALGIA.)

HOMICIDAL MONOMANIA.—The title given to this chapter of mental pathology belongs to the category of those terms which are more or less sacred by reason of long use; they have been preserved by a sort of habit of the language, although it is recognised that they no longer correspond to the actual state of science.

It is almost superfluous to remark that the doctrine of *monomania* has had its day. The inconvenience, however, of this defective terminology is considerably lessened by the circumstance that, in spite of the erroneous term, we generally agree on the subject itself which it serves to denote. Does there exist a form of insanity, a distinct clinical entity, which is characterised by the impulse to murder? The question, so put, must be answered in the negative. On the one hand, it may be objected that homicidal violence may be found among the symptoms of almost all forms of insanity, and, on the other, it may be asserted that the impulse to murder never constitutes, by itself, a morbid condition which can be isolated from all other symptoms. If it be true that this impulse may exist together with mental lucidity and consciousness without ceasing to be pathological, it is not less certain that there must be a general fundamental derangement in which it finds its *raison d'être*. This is necessarily a moral degeneration, of which the im-

pulse in question is only the prominent symptom.

Definition.—With these reservations in regard to doctrine and terminology, we think it possible to define the variety of impulse called “homicidal monomania” as *a syndrome directly connected with hereditary moral degeneration, and essentially characterised by the desire to murder, without any intellectual disorder or passion, and necessarily requiring, as concomitant mental conditions, persistence of consciousness, anxious struggle against the besetting impulse, and lastly, in case the act is committed, subsequent moral depression.*

History.—For long, authors have established important distinctions in the genesis and the special characters of assaults committed by lunatics. “The insane make attempts on the life of their equals; they are very irritable, and in an attack of anger strike and kill the persons who oppose them or are believed to oppose them; they kill the persons whom they think, rightly or wrongly, to be enemies from whom they have to defend themselves or on whom they have to take vengeance. Others, deceived by illusions of the senses or by hallucinations, obey the insane impulse. Some who kill give motives for their horrible determination and reasons for their acts, and are conscious of the evil they do. Some are blind instruments of an involuntary instinctive impulse, which impels them to murder. Lastly, we observe idiots, who, in consequence of defective intellectual development and ignorant of evil as well as of good, kill by imitation” (Esquirol, “Des Maladies mentales,” ed. belge, tom. i. p. 376).

Up to the end of the last century, as we see from Marc, mental alienation was only recognised when more or less complete weakness of judgment and memory was found, or where delusions accompanied by unreasonable actions or even frenzy were found (Marc, “De la Folie considérée dans ses Rapports avec les Questions médico-judiciaires,” Paris, 1840, tom. i. p. 222).

Pinel was the first in France to show that there may exist a mental condition in which, without perceptible aberration of the intellectual faculties, patients are persecuted by irresistible sanguinary proclivities. This is called *manie sans délire*.

But even before Pinel authors had occupied themselves with this question. In Germany Ettmüller called this form of insanity *melancholia sine delirio* or *perturbati mentis melancholia sine delirio*. In this condition *recta ratio sine delirio* is preserved. He even cites two observa-

tions of Plater, one of which concerns a mother who had several times been tormented by the desire to kill her child; the other is of a woman who often showed a tendency to utter blasphemous words.

However this may be, in France Esquirol took up the idea of Pinel, and created the “monomania” in order to give a term for these mental aberrations, characterised by the existence of a small number of exclusive dominant fixed ideas, and sometimes of one idea only, the reason being otherwise quite sane. He calls the condition with which we are occupied here *instinctive monomania*, to distinguish it from true or *intellectual monomania*, in which there is disorder of the intellect, and from *affective monomania*, or moral insanity.

This theory of monomania met with success. Admitted by Marc, Briere de Boismont, and other alienists of that time, it soon produced a host of similar terms. We shall not cite that of Marc, who classified the monomanias according to the act committed. Prichard had already described *moral insanity*; others described a *reasoning lypemania* (Billod), *la folie lucide* (Trélat), *les pseudomonomanies* (Delasiauve), *l'esthésiomanie* (Berthier), *la manie raisonnante* (Campagne, J. Falret, &c.).

On the other hand, authors had from the commencement included, under the title of monomania, a number of different conditions: under homicidal monomania, e.g., were included acts committed by patients suffering from persecution-mania, epilepsy, melancholia, &c.

At the present time the ground, although not yet completely cleared, is at least much less encumbered. There are in insanity a number of types, as general paralysis, chronic persecution-mania (or systematic progressive psychosis), epilepsy, alcoholism, &c., which may easily cause homicide, but which are nevertheless well-defined forms in which the act is nothing but the logical consequence of the primitive insanity.

In addition to these forms there is a great class of patients—those who are degenerated through heredity. We may say that since this class has been recognised, the reign of monomania has come to an end. The works of Falret père, of Morel, and of Falret fils prove that mental states, until then regarded as distinct maladies, are in reality only symptoms. To Magnan, however, is due the honour of having grouped these symptoms, and of having made them characteristic of a whole class of patients. These symptoms, to which he gives the excellent term

"episodical syndromes," are only the *apanage* of patients whom an insane inheritance has profoundly tainted morally and intellectually, as well as physically, and who are called "degenerated through heredity." "There exist, in mental pathology, psychopathic individuals whose disorders differ distinctly from other forms of alienation as regards the character of the patients' innate disposition, the fundamental inharmoniousness of their faculties, the strange abnormality of their tendencies, and *episodically* as regards their moral servitude to *obsession, conscious impulses, fixed ideas*, and actual *tics moraux*, all of which are of enormous diagnostic importance; as regards the sudden explosion of mental disorders, with paroxysmal and disorderly course, with Proteus-like symptoms, and with leaps and changes too sudden to be foreseen" (Paul Garnier, "La Folie à Paris," 1890, p. 152).

All the ancient varieties of monomania may be found in these patients, either associated, or separately, or following each other. Undeniably, Marc, a sagacious and clear observer, had an idea of this clinical truth. He remarks about the frequent association of mystical with homicidal ideas, and equally notices the fact on which Magnan and his followers insist in this "insanity of the degenerated"—viz., the satisfaction which follows the accomplishment of the act (*loc. cit.* p. 246).

Symptoms.—It is not surprising that a lunatic makes an attempt on the life of his equals, because in every insanity there may be a direct or indirect danger. Let us imagine a patient who thinks himself to be struggling against some hateful plot. For a long time he has suffered silently, and has passively borne a thousand tortures, or he has limited himself to remonstrances and protestations, the uselessness of which has only served to increase his irritation, his resentment, and the desire for revenge. A day arrives when, weary of his *rôle* as a victim, he turns on his supposed enemy, and does so boldly and without mercy. Being fully convinced of his right of legitimate defence, he will murder in full daylight the person whom his deranged mind represents to him as his persecutor; or an hallucination may cause him to attack some one. We may say that his crime is the logical consequence of his insanity, because in his homicidal attack he is consistent with the insanity itself.

On the other hand, a lypemaniac will sacrifice one or several of his relatives in consequence of his affection for them. By virtue of his special moral disposition,

and his melancholia, which vitiates all the impressions he receives, and interprets them in the worst possible sense, he foresees for those who are dear to him nothing but intolerable tortures. By killing them, his purpose is to deliver them from all this, and thus he makes his actions agree with his morbid ideas, as, *e.g.*, another melancholiac does, who kills in order to be killed, since he has not the courage to take his own life; the same is true of an insane mystic who obeys a command from heaven.

Lastly, a lunatic not knowing what he is about, or an epileptic, may—in the middle of a paroxysm—throw himself on those around him in an outbreak of frenzy, of which when he returns to consciousness he has not the slightest remembrance. It cannot be surprising that murder may be committed in all these states, because this is unfortunately the logical result of these pathological conditions. We must not expect reasonable actions to be performed during an intellectual eclipse.

In our case we have, on the contrary, an intellect which remains lucid, and judges and appreciates normally; nevertheless, it is inhibited, in the midst of the greatest anguish, by the impulse (obsession) to murder. This causes surprise, and forms an inexplicable problem, because neither aberration of intellect, nor passion, nor unconsciousness are present to allow of an interpretation of the homicidal impulse, which reason rejects, which the will strives against, but which nevertheless imposes itself upon both with wearying and troublesome persistence.

The *attack* is generally sudden. The impulse is produced without any apparent cause. It suddenly invades the mind, sometimes limited to a painful but restricted obsession, and sometimes is so violent that homicide is at once imminent.

The paroxysms which may be said to be the attacks of this strange diathesis, are generally announced by more or less distinct physical phenomena, in which one may see a sort of premonitory *aura*: "they are a sudden sense of heat in the head, constrictive cephalalgia, precordial anxiety, shivering, &c." (Paul Garnier, "La Folie à Paris"). Esquirol, with his admirable power of observation, has taken notice of these symptoms, which he thus describes:—"When the individuals who are governed by the impulse to murder are carefully observed, one finds that this condition is preceded and accompanied by cephalalgia, sickness and abdominal pains, such as often occur in the insane, and that these symptoms are more pronounced

when this dreadful impulse becomes more powerful."

The unfortunate patient generally confides his horrible desire to his doctor, or even to his family. Sometimes he also goes to accuse himself before the authorities. His anguish shows itself in phrases which are almost the same in all those who are slaves of this fixed impulse: "I have bad thoughts. . . . I am tormented by the fear to do evil to those who are dearest to me in this world . . . an inexplicable instinct drives me to the most frightful crime . . . I must flee in order to avoid succumbing to this impulse," &c.

The expression of such patients indicates most intense anxiety; one feels oneself in the presence of a man who is governed by a force greater than his will, and who is not master of himself. Many ask for precautions against themselves; foreseeing a danger which seems to them to threaten the lives of those who are dear to them, they are willing to resign their liberty.

An important peculiarity is the part which *opportunity* plays in the development of obsession. Thus, Esquirol remarks most judiciously: "The presence of persons chosen as victims, and the sight of proper instruments for the accomplishment of their horrible desires, awaken and augment the proclivity of these patients to homicide."

The weapon is there under his eyes—the patient might seize it—and in a sudden act all would be done! At the moment of this mental representation of an eventual crime there is a shivering with dread. A moral shock is produced; the sight becomes dim as in a sort of vertigo. Defiance of one's own self and fear seem to be the initial symptoms. Before this morbid solicitation occurs there is a *fear to see it rise*, and it is a strange peculiarity that just this apprehension awakens and stimulates the homicidal proclivity. Rejected to-day, it reappears to-morrow under the same circumstances. Want of space forbids us to cite here the striking observations related by authors. As characteristic language, and apt to show the intensity and frightfulness of the obsession, we may cite the words of a butcher's wife, who was driven to cut with a big knife the throats of her children playing in the shop: "I am not mad; I know quite well what I am saying and doing. I only don't know what is the matter with me; for the last three months I do not recognise myself. What is going on within me is too horrible to tell. I adore my children, and *something says to me: 'You shall*

kill them!' The first time I felt a shiver which shook me from head to toe. I had the butcher's knife in my hand; my two children were near me amusing themselves. The idea to cut their throats seized me all at once: 'Kill them! kill them!' cried out to me my criminal desire." Can anything more dreadful be imagined? (Paul Garnier, "La Folie à Paris.")

When we examine carefully the facts of homicidal monomania, we find that, without losing its indispensable characteristic of consciousness, it does not always pursue the same course. Although it is true that an obsession is ordinarily an element of the syndrome, we must nevertheless note that the symptoms may, in other cases, be those of a sudden impulse without any preceding obsession. The *impulse to murder* arises suddenly, and without any apparent cause, like a paroxysm of destructive frenzy. The suddenness of the attack and the intensity of the impulse might lead us to think of epileptic insanity as the *psychical equivalent* of a convulsive attack, but the preservation of consciousness differentiates clearly these two conditions. Most frequently warned by the appearance of the impulse as an actual *aura*, which has been compared to the rush of blood to the head, and which is accompanied by extraordinary anxiety, the patient, on the point of passing over into an attack of homicidal insanity, shouts to those around him to escape, or he desires to be restrained.

Considering the differences in the symptoms, we are led to distinguish two varieties of conscious homicidal impulse or monomania.

(1) The **obsession to murder**, with slow, intermittent course, and with exacerbations of the desire, constituting the *fixed homicidal idea*, which is intensified by the accompanying anxiety.

(2) The **attack of homicidal impulse** is brought about by an instantaneous *stimulus*, by a mental convulsion discharging itself in movements, and thus resembling, as also by its suddenness, an epileptic attack, from which it differs, however, in the preservation of consciousness.

We do not pretend that the former variety is less dangerous than the latter, for, although less sudden and intense, it is more persistent. In both cases, if the desire of homicide is about to become an accomplished fact—which, fortunately, is not often the case, in consequence of the precautions which the patient causes to be taken against himself—there is in this motor discharge a sudden appeasement and satisfaction, as most observers have stated.

In subjecting a patient suffering from homicidal monomania to a careful examination, we find among his personal and hereditary antecedents, not only sufficient indications to justify his classification among the degenerated through heredity—mental disequilibrium and instability, morbid emotion, physical signs, *tics*, &c.—but also other moral peculiarities, other obsessions, and, lastly, other *moral tics*, which represent so many links of one and the same pathological chain.

Diagnosis.—Lucidity, preservation of consciousness, and absence of every emotion or passion are, as we have said, the essential elements of the syndrome we are studying. These characters are sufficiently distinctive to allow of the diagnosis under any circumstances. In one case, however, there might be some hesitation: it is possible to confound the *impulsive variety* with the epileptic *aura*, which sometimes consists of a sudden homicidal frenzy without unconsciousness and consequent amnesia. Let us suppose the epileptic attack to be limited to this initial phenomenon—and such cases have been reported—and the difficulty of a diagnosis may be so great that the history of the case is alone able to clear it up.

Ætiology.—Pathogenesis.—Our knowledge of the necessary relations between mental degeneration and conscious homicidal impulse indicates sufficiently where we have to look for the causes of this syndrome. It seems, therefore, unnecessary to insist upon the ætiology. A curious psycho-pathological problem, however, is the mode of the generation of the fixed idea to murder. What is the “Why” of this dreadful obsession, which is caused neither by emotion nor by passion? What is the psychological mechanism of its sudden appearance, of its persistence, and of its sudden awakening after more or less complete disappearance? We have said that homicidal obsession with consciousness is intimately allied to mental degeneration. Therefore, at the hand of clinical observation we are compelled to acknowledge that the *psycho-moral indistinctness* exhibited by this condition furnishes alone the explanation of a similar phenomenon. In the same way we find in homicidal monomania a condition partly, but strongly, impregnated with heredity.

There is in hereditary degeneration a mode of feeling and reaction peculiar to itself. It is only on this choice soil that this strange proclivity develops, which may, in consequence of the seriousness of its social consequences, seem very different from a thousand other obsessions or *manias* to which those individuals who deviate

from the normal types are subject, but which does not differ from it in its fundamental principles.

Authors who have occupied themselves with this question have at all times admitted the existence of a vague personality in addition to the patient's proper personality. They have assumed an unconscious personality existing side by side with the conscious personality—sometimes co-operating with it, sometimes in opposition to it. They have called this (a word bad enough) *l'inconscient*, and have attributed to it a principal rôle in the affection with which we are now occupied.

We do not see, however, good reason for introducing here an unconscious personality, which really has nothing to do with it. Interpreting it more scientifically and more clinically, we find an explanation, first, in the abnormal excitability, and, secondly, in the erethism of certain cell-groups in the cerebral cortex.

The condition of mental degeneration is, above all, characterised by a want of harmony in the development of the faculties, and the easy emancipation of psychosensory from other centres to which they ought to be subordinate. Hence a want of cohesion, measure, and actual *consensus* in the performance of the functions of these centres, and hence also the instability and inco-ordination which are a rule, and almost a psycho-pathological law, of hereditary mental degeneration. To this functional inco-ordination corresponds necessarily an incoercibility of the sentiments, emotions, and ideas. We then notice these disproportionate and incoherent reactions, which are for the mind what chorea is for the movements.

From this disposition, so profoundly abnormal in its reactions, and from the *insane vibration* of certain groups of cerebral cells for which we have no expression, proceed these illogical emotive manifestations, which lie at the bottom of most phenomena known as obsessions, impulses, or *episodical syndromes* (Magnan) of the degenerated through heredity—that is to say, of their doubts, of their anxious perplexities, and of their childish fright, which the reason helps to judge and to condemn, without, however, being able to drive them away. Thus, morbidly prepared to make use of any opportunity for showing his incoercible and illogical emotivity and his peculiar aptitude of being captured by a strange and *bizarre* fixed idea, the degenerated individual is at the mercy of the slightest objective provocation. The occasion may, *e.g.*, be the sight of a weapon. The impression, which would be quite indifferent to everybody else,

takes in him the proportions of an actual moral shock. Profoundly deranged, and almost in a sort of mental vertigo, he apprehends with fright the criminal use which may be made of this weapon, and he is not quite certain that his hand should not seize it in order to strike with it. The best-balanced brain may suddenly be traversed by an idea which is most singular, most frightful, and the least in accord with the innermost sentiments; but it only passes through, rejected by the moral conscience; it was but a *bizarre* whim of ideation, which vanished as soon as it was formed.

But in the case of a degenerated individual, where the soil is different, the idea, which otherwise would not make any impression on the centres, takes, in consequence of the emotivity and of the failing of the faculties, complete possession of them. The objective provocation—*e.g.*, the sight of a weapon—is not absolutely necessary; but, on the other hand, the purely subjective and spontaneous process is much rarer. In the latter case the thought may mentally represent a crime; the conscience is thus tempted, brought into a state of emotion, and turns away from it with horror, but returns to it incessantly.

There is in either case a condition of morbid emotivity, which results in erethism of a certain centre; this erethism tends to connect idea and action closer and closer until it creates the desire to execute the act.

The idea appears—horrible, *repulsive*, and *attractive* at the same time—exercising a sort of fascination, which is also found under many other circumstances, when the emotion is predominant. A strange disorder develops itself, which is very analogous to the vertigo of a neuropathic individual when he sees from an elevated position the deep at his feet. The fright almost freezes him; he will throw himself backward, but has no energy to do so; he seems to be attracted to the deep by a blind force.

Is not sometimes the effect of very great fright to throw the individual into the danger which he wants to flee, so much disordered become the reactions through an emotional disturbance? In a vertiginous individual the mental representation of the eventuality of a frightful fall, by acting powerfully on the psycho-sensory centres, tends to bring about precisely the movement—the *rush forward*—which the mind thinks of. Is not *strong* thinking of an action, even when it meets with the opposition of the conscience, so to say the motor *prelude* of this action? For

thinking can be called *strong* only when it excites profoundly the psycho-motor centres. Thus an energetic tension is established, creating the want of a motor discharge after these successive accumulations, and we have to consider homicidal impulse as such a motor discharge, appearing with a flash-like violence. These conditions explain sufficiently why the obsession suddenly subsides after the patient has satisfied his desire to kill.

Have we to conclude from the fact that a patient labouring under homicidal impulse struggles against the obsession, and thus stands between the sollicitations of the fixed idea and the advices of a conscience which tries to reject them, a *dualism of the will*? Are there two wills, of which the one, *normal*, rejects the criminal act, and the other, *pathological*, desires the execution of the deed? We are unable now to go into this question of morbid psychology. We may, however, mention that there are several modalities of *will*. We have here tried to show the energy of a *morbid desire*, itself derived from a sort of emotional insanity, which causes erethism of the other psycho-motor centres, and have denied that there could be an *instinctive effort* for the satisfaction of this *want*. One might call this an *instinctive will*, rudimentary in its elements, but capable of acquiring in an individual degenerated through heredity a power over the will, properly so called, which is formed under the direction of, and by, the higher faculties.

Forensic Medicine.—If we consider that the homicidal fixed idea always connotes a subjacent morbid condition of mental degeneration, of which it is only a symptom, and if we, in addition to this, recognise this clinical truth, that a patient labouring under homicidal impulse is as unable to free himself from this fixed idea as a lunatic is to get rid of his imaginary conceptions or his hallucinations, we cannot hesitate to declare a man, who thus makes an attempt on the life of another, to be irresponsible before the law. The expert has to show that a homicidal monomaniac can as little resist his impulse as a patient suffering from onomatomania or coprolalia can help uttering such or such abusive or obscene word. At bottom the phenomena are the same, and a difference exists only in the extrinsic circumstances. The expert has also to look at the antecedents of the patient for abnormalities, which are mostly found in great number.

We may state as a principle, that a magistrate ought to call for the examination by a medico-legal expert of every

criminal whose attempt does not seem based on the ordinary motives of most crimes. The duty of the medico-legal expert is to prove that persistence of consciousness and lucidity does not exclude a morbid mental condition.

Concerning the **treatment**, we have nothing to add to that employed in all hereditary forms of mental degeneration. The seriousness of this impulse, however, naturally requires special precautionary measures. It is almost superfluous to say that it is indispensable to separate children from a mother who suffers from the desire to cut their throats. These patients are often the first to ask for protection against themselves, and the homicidal solicitations of which they accuse themselves should not be taken lightly. The *régime* of the asylum, isolation, sedative or tonic treatment, as the case requires, and a strict moral hygiene may often bring about a favourable modification. The homicidal obsession subsides gradually, and may disappear for ever, although a re-awakening of the impulse is always to be feared.

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HENRI COLIN.

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HORRORS (*horror*, a trembling, from *horreo*, I shake with cold). A popular term for delirium tremens, in reference to the sensations of terror and excitement which are symptomatic of the disease.

HOSPITALS FOR THE INSANE. (See REGISTERED HOSPITALS.)

HUMOR MELANCHOLICUS (*humor*, moisture, from *humeo*, I moisten; *μελαγχολικός*, having black bile). A name given by the humoral pathologists to the morbid fluid of the body which was supposed to cause melancholia.

HUNDSHUNGER (Ger.). An equivalent for Cynorexia (*q.v.*).

HUNDSWUTH (Ger.). An equivalent for Hydrophobia.

HYALOPHAGIA (*ύαλος*, glass; *φαγείν*, to eat). A name given to the proclivity evinced by some insane persons to eat or chew glass. (Ger. *Glasfressen*.)

HYDROCEPHALUS OF THE INSANE (*ύδωρ*, water; *κεφαλή*, the head). A name given to chronic meningo-ependimitis occurring in the insane.

HYDROMANIA (*ύδωρ*; *μανία*, madness). A term used by Baumes to denote excessive morbid thirst; a rage for water. By Strambio to denote mania with a desire to drown; this latter is said to be a symptom of pellagra (*q.v.*). (Fr. *hydromanie*.)

HYDROPHOBIA, HYSTERICAL; HYDROPHOBIA, NERVOUS; HYDROPHOBIA, SPONTANEOUS (*ύδωρ*; *φόβος*, fear). Different terms for a form of hysterical affection the symptoms of which resemble those of hydrophobia more or less closely. In consequence of the public attention drawn to Pasteur's treatment, the number of cases of pseudo-hydrophobia has been greatly increased.

HYDROPHOBIA, MENTAL SYMPTOMS OF.—The mental symptoms presented by a patient suffering from hydrophobia or rabies, are interesting because they offer a very consistent and comprehensible sequence not only in man, but also in the lower animals. This sequence, moreover, is parallel to the anatomical changes found post-mortem. In man the first mental symptom is, as a rule, an ill-defined dread or feeling that something is wrong, and this becomes exaggerated into well-marked suspicions—*e.g.*, of being

poisoned, of being pursued, that some accident is happening to the house or surroundings of the patient. After this preliminary stage has begun, then follow very distinct hallucinations of the special senses, almost entirely of sight and hearing; thus in the lower animals the pursuit of imaginary objects is very characteristic, and in man the sound of voices, and, more rarely, the sight of terrifying objects, occur as the more frequent instances of psychical disorder. The occurrence of the hallucinations is usually intermitted by periods of complete lucidity. This intermission, which is more rarely seen in the larger animals, is common enough in the highly domesticated dog, which can be frequently aroused from the hallucinatory condition by the voice of its master. From the hallucinatory stage the condition passes into the stage of excitation, whence the designation of mania or madness has been applied to that disease. The excitation phenomena, however, vary very much in different animals and in different human beings. In the first place, as regards animals, the phenomena of excitation are only very slightly marked in some classes—*e.g.*, the rodents, especially the rabbits; whereas in other classes—*e.g.*, the solipedes, especially the horse—although the physiological considerations of diet, &c., are much the same, nevertheless the excitation is very marked; in fact, there is no animal perhaps which exhibits to such an extreme degree the destructive maniacal outbursts as the horse. Even in the same species there may be differences of this kind; thus, in the dog we may have as much developed ferocity as is seen in the cat when suffering from rabies, whereas in the paralytic form or so-called dumb madness, the animal shows nearly as little disposition to attack as in the case of the rabbit. In man the same differences present themselves; in the cases of highly nervous persons there may be a great deal of delirium, very rarely, however, any destructiveness, and usually much talkativeness and constant complaints and apprehensions of being left alone or being injured. The question of destructive mania will be further alluded to directly in speaking of *pseudo-* or *hysterical hydrophobia*.

From the excitation stage the individual passes into the paralytic condition. In animals this is, we may say, invariably present. The maniacal symptoms gradually fade out, as the centres become more and more exhausted, but remain so long as the animal possesses any consciousness, since the paralysis appears to affect the lower centres first, proceeding as it

does up the spinal cord, paralysing the legs and the lumbar centres, and ultimately the higher centres. In man usually the case terminates unfavourably by cardiac syncope during the stage of excitation; but if the patient be carried through the former condition, the contrast between the excitation stage and the paralytic stage is sometimes extremely marked and suddenly developed. The patient, who before was showing the greatest apprehension with flushed face and staring eyes, who exhibited most painful spasms on any attempted feeding or in consequence of any reflex disturbance, now becomes quite calm, fully conscious of his state, and not unfrequently drinks fluids without any spasm or fear of the same. This, of course, is unfortunately not an improvement. It only means that the centres are for the most part exhausted, and that the blood-pressure is very greatly lowered.

A word must be said here upon the mental condition, which is of great practical importance, and which is called *pseudo-* or *hysterical hydrophobia*.* This state of affairs is now well known. In all cases the symptoms presented have, to a certain extent, resembled the genuine disease, but differ chiefly by omission of some characteristic feature. In the majority of instances the patients are males, the incubation period alleged is too short, the history of the bite or infectio is usually very doubtful, and the onset of the mental change is not such as has just been described, but as follows:

The patient declares that he has hallucinations of visions so far as the dog is concerned, his conversation is constantly about the dog and his having been bitten, and then in the excitable state he becomes very destructive, attempts to bite people and injure them, a symptom which is of the utmost rarity in the real disease. The next noteworthy point is that the characteristic spasms are absent, that he can be deceived into swallowing without spasm, by assuring him that whereas he cannot drink water, he can easily swallow milk, and finally the excitatory condition lasts for many days and even weeks, no paralytic phenomena showing themselves. Such survival of the patient beyond a few days makes the diagnosis absolutely certain.

VICTOR HORSLEY.

[NOTE BY THE EDITOR.—] Mesnet (*Délire aigu hydrophobique*) has reported the case of a man who died in his *clinique* after presenting very well-marked symptoms of hydrophobia and also of mental disorder. It was not regarded by Mesnet

* Cases are given in Dr. Huxley's "Influence of the Mind upon the Body" (Churchill, 1884).

as an example of imaginary hydrophobia, but as a real malady of the nervous system, in which the hydrophobic symptoms predominated, but were certainly not due to the bite of an animal. See the article "Hydrophobie," in Dechambre's *Dictionnaire des Sciences médicales*, 1889.]

HYDROPHOBOPHOBIA (ὕδωρ, water; φόβος, fear or dread of). The morbid dread of hydrophobia which is sometimes so intense as to constitute a form of insanity.

HYPACUSIA HYSTERICA (ὑπό, under (diminutive); ἀκουσις, hearing). Defective hearing in a hysterical person without defect of the special organ.

HYPÆSTHESIA (ὑπό, diminutive; αἴσθησις, perception by the senses). A diminution of the general or special sensibility of any part of the body.

HYPERACUSIA (ὑπέρ, above or beyond (denoting increase or excess); ἀκουσις, hearing). Morbid exaltation of the sense of hearing; auditory hyperæsthesia. A rare condition in which sounds are heard with undue loudness, and even such as are inaudible to other persons are distinctly perceived. It occurs mainly in hysterical subjects, the augmented acuteness being only part of the extreme acuteness of all the senses. It has also been observed at the onset of acute cerebral disease.

HYPERÆSTHESIA (ὑπέρ, intensifying prefix; αἴσθησις, perception by the senses). An excessive or exalted sensibility depending upon a too great sensitiveness to impressions of the sensory nerves, or a too acute perception by the nerve centres of these impressions. By some it is limited to the more acute perception of painful sensations. It may be purely functional as well as organic in its origin. (Fr. *hyperesthésie*; Ger. *Hyperästhesie*.)

HYPERÆSTHESIA, ACOUSTIC; HYPERÆSTHESIA, AUDITORY. Synonyms of Hyperacusia.

HYPERÆSTHESIA, CEREBRAL (ὑπέρ; αἴσθησις; cerebrum, the brain). Hyperæsthesia taking origin in some disturbance of the cerebral functions.

HYPERÆSTHESIA, FOCI OF. (ὑπέρ; αἴσθησις; focus, a fireplace). Sensitive spots on the surface of the body situated in different places in different patients, pressure on which, whether accidentally or purposely, produces all the phenomena of a hysterical aura: præcordial pain, globus hystericus, buzzing in the ears and throbbing in the temples. The same points when excited during a hysterical fit may, but only imperfectly, arrest an attack in process of evolution. These foci are frequently observed to be located on the skin of the genital organs in male subjects (Charcot).

HYPERÆSTHESIA, GENERAL (ὑπέρ; αἴσθησις). The form of hyperæsthesia which affects the whole surface of the body. (See Hysteria.)

HYPERÆSTHESIA, GUSTATORY (ὑπέρ; αἴσθησις; gusto, I taste). A morbid increase of the sense of taste. It occurs especially in hysteria and epilepsy.

HYPERÆSTHESIA, OPTIC (ὑπέρ; αἴσθησις; ὀπτικός, pertaining to sight). An extraordinary sensitiveness of the retina and optic nerve common in certain functional maladies, such as hysteria and epilepsy. In epilepsy auræ are frequently of the visual type, varying from a complex visual idea (e.g., angels, demons, &c.) to a simple one (e.g., a flash of light). In insanity and delirium such complex visual ideas are very common, and have received the name of visual hallucinations, but they may occur occasionally as isolated symptoms in various forms of nerve instability, due to weakness, in persons of a neurotic disposition or who have a distinct strain of insanity in their family. (See Epilepsy, Hallucinations, Hysteria, &c.)

HYPERÆSTHESIA, OLFACATORY (ὑπέρ; αἴσθησις; olfacio, I smell). A morbid condition observed in the hysterical in which odours, whether pleasurable or the reverse, are intensely exaggerated.

HYPERÆSTHESIA PSYCHICA (ὑπέρ; αἴσθησις; ψυχή, the soul or mind). A synonym of Hypochondriasis.

HYPERALGESIA (ὑπέρ; ἄλγησις, a sense of pain). Excessive sensibility to painful impressions. A condition generally associated with hysteria, general nervousness, or with acute inflammation involving the nerve centres or special nerves. Sometimes used in the more general sense of excessive or exalted sensibility.

HYPERBULIA (ὑπέρ; βουλή, will). Literally an excessive increase in the power of the will. Friedländer employs this term to denote the species of violent mania occurring in persons of weak will and depraved morals.

HYPERCEDEMONIA (ὑπέρ; κηδεμονία, care or solicitude). A term for excessive grief, anxiety, or care. (Fr. *hypercédemonie*.)

HYPERECHEMA (ὑπέρ; ἤχημα, a sound). A morbid exaggeration of a normal sound. (See Hyperacusia.)

HYPERERETHISIA (ὑπέρ; ἐρεθίζω, I irritate). A term for excessive mental irritability.

HYPERKINESIA (ὑπέρ; κίνησις, movement). A synonym of Impulsive Insanity (Clouston).

HYPERKINESIA HYSTERICA (ὑπέρ; κίνησις; hysteria, q.v.); **HYPER-**

KINESIA UTERINA (*υπερ*; *κίνησις*; *uterinus*, pertaining to the womb). Terms synonymous with Hystero-epilepsy, Hysterical fits.

HYPERLOGIA (*υπερ*; *λόγος*, a word, discourse). The excessive loquacity of a maniacal person.

HYPERMNESIA (*υπερ*; *μνήσις*, memory). Over-activity of the memory. A condition in which past acts, feelings, or ideas are brought vividly to the mind, which, in its natural condition, has wholly lost the remembrance of these. It is frequently observed in sleep and in certain unnatural conditions—*e.g.*, the influence of drugs, &c. (Fr. *hypermnésie*.)

HYPERNŒA (*υπερ*; *νοῦς*, mind or intellect). A term used by Leupoldt for the excessive mental activity observed in disease, in contradistinction to *ancea*. Friedländer uses the term to denote the excessive and incongruous action of the imaginative faculty.

HYPEROSMIA (*υπερ*; *ὄσμή*, odour, smell). A morbidly acute sense of smell; a term also applied either to olfactory illusions or hallucinations. It is not an uncommon condition in hysteria and in certain mental affections. Hallucinations of smell appear to have a close connection with uterine disorders.

HYPERPHASIA (*υπερ*; *φάσις*, a saying). Any want of control over the organs of speech such as occurs in acute mania and some forms of chronic mania: garrulity with incoherence.

HYPERPHRASIA (*υπερ*; *φράσις*, speech). The incoherent and exaggerated forms of speech of a maniacal person.

HYPERPHRENIA (*υπερ*; *φρήν*, the mind). A term used for mania or madness (Guislain), literally passionate mental exaltation. (Fr. *hyperphrénie*.)

HYPERPLEXIA (*υπερ*; *πλήξις*, a stroke). A term used for melancholia with stupor (Guislain).

HYPERPRAXIA (*υπερ*; *πράξις*, a doing). The extreme motor restlessness observed in acute mania and some forms of melancholia.

HYPERTHYMIA (*υπερ*; *θυμός*, the mind). It is unfortunate that this term is employed by different writers in different senses; the etymology simply implying mental intensity or excitement. Why it should be employed to signify mental disease, in which cruelty or foolhardiness is a prominent symptom (Leupoldt), we are at a loss to understand. Or, again, how it should come to be used as a synonym of moral insanity. It is more sensible to restrict the term to mental hyperæsthesia in the form of melancholia. The word is employed in this sense by Arndt.

HYPERTRICHOSIS PARTIALIS (*υπερ*; *θρίξ*, a hair; *partialis*, from *pars*, a part). The appearance of hair in unusual parts of the body; also the unnatural hairiness in women observed in some chronic forms of insanity. (See BEARDED WOMEN, HAIR.)

HYPERTROMOS (*υπερ*; *τρόμος*, fear or tremor). The occurrence of excessive fear or tremor.

HYPNÆSTHESIS (*υπνος*, sleep; *αἴσθησις*, sense or feeling). Martini's term for dulled sensibility, mental torpor, or drowsiness. (Fr. *hypnæsthésie*; Ger. *Schlafgefühl*.)

HYPNENERGIA (*υπνος*; *ἐνέργεια*, action). A synonym of Somnambulism.

HYPNOBADES (*υπνος*; *βαδίζω*, I walk slowly). One who walks in his sleep; a somnambulist. (Fr. *hypnobade*; Ger. *Nachtwandler*.)

HYPNOBADISIS (*υπνος*; *βάδισις*, a walking). A synonym of Somnambulism.

HYPNOBASIS, HYPNOBATESIS, HYPNOBATIA (*υπνος*; *βάδισις*, a walking). Synonyms of Somnambulism.

HYPNOGENIC (*υπνος*; *γένω*, from *γεννάω*, I engender). That which gives rise to or originates hypnotism.

HYPNOLEPSY (*υπνος*; *λήψις*, a seizing). Sleep disease. A synonym of Narcolepsy (*q.v.*).

HYPNONERGIA (*υπνος*; *ἐνέργεια*, action). A synonym of Somnambulism.

HYPNOPATHY (*υπνος*; *πάθος*, disease). A morbid condition of drowsiness or somnolence.

HYPNOPHOBIA (*υπνος*; *φόβος*, fear). The fear or dread of sleep from mental or physical causes. (Fr. *hypnophobie*; Ger. *Schlaffurcht*.)

HYPNOPHRENOSIS (*υπνος*; *φρήν*, the mind). A term applied by C. H. Schutze to the various forms of sleep disturbance (*e.g.*, somnambulism, nightmare, &c.) and to delirium and lethargy. (Fr. *hypnophrenose*; Ger. *Schlafirrung*.)

HYPNOSIA BIOMAGNETICA (*υπνος*; *βίος*, life; magnetism). The induced sleep of animal magnetism: hypnotism (*q.v.*).

HYPNOTIC (*υπνωτικός*, a putting to sleep). That which has the power to induce sleep. Also the condition relating to hypnotism (*q.v.*).

HYPNOTIC HALLUCINATIONS (*υπνωτικός*; *hallucinator*, I wander in mind). Pohl's term for the phenomena of hypnotism which are partly spontaneous, partly due to suggestion (see HYPNOTISM). Also used by Kandinsky for the hallucinations which frequently occur in the state between sleeping and waking. (See HALLUCINATIONS.)

HYPNOTICS. (See SEDATIVES.)

HYPNOTISM, History of.—If any serious attempt were to be made to trace out to its first beginnings the history of the conditions which are now included under Hypnotism, it would be necessary to go so far back as to reconsider the early Egyptian religions with their ceremonies of crystal gazing and reported cures by laying on of hands, to analyse the utterances and the surrounding conditions of the great Greek oracles, to penetrate some of the most sacred of Oriental mysteries, and to trace through the Middle Ages the confusion of the abnormal with the miraculous. Any such attempt is impossible in these pages; but before modern phenomena and modern theory can be satisfactorily understood some very slight sketch of the last hundred years of evidence is advisable.

Early in the seventeenth century van Helmont gave the great authority of his name to stamp some of the vague influences of man on man as magnetic, and that association has not to this day been thoroughly got rid of or thoroughly established.

Friedrich Anton Mesmer (1734–1815), an original and self-willed doctor of Vienna, was directed to the use of the magnet by the Jesuit Maximilian Hell, and after a few years of private trial and experiment went to Paris in middle life (1778), and in a period of much chaotic thought and action, and established himself as a conspicuous person claiming to control some diseases by a healing “magnetic fluid” that surrounded his own body and could be given off to others; a personal influence, valuable because it was personal, if not unique. There was some pomp and mystery, high fees were charged, the public were widely fascinated, and some striking scenes followed of the powerful effects of expectancy and excitement. The essentials of the method were direct communication with the *baquet*, or wooden receptacle of this “magnetic fluid,” or of contact with some vehicle of the fluid, such as magnetised water. There is no adequate medical record of the results. The French Government of the day thought them important enough to offer Mesmer £20,000 for his secret, but he refused the offer. Two medical commissions sat in judgment upon him, and reported against his theory of a magnetic fluid, but paid little attention to the results he claimed, in spite of the energetic protest of Alphonse de Jussieu (1784). Mesmer’s vanity and love of a mystery which was difficult to distinguish from fraud, led to his disfavour and to his leaving Paris after about twelve

years. The interest he had raised took root in a small group of honest and practical men in France (De Puységur, D’Eslon, Du Potet, Pététin, Deleuze, &c.), who brought about results of hypnotism which were then too startling to be believed, though commonplaces of to-day; and in Germany, notably in Wienholt and Wesermann, and also in Fischer and Wolfart, well-known physicians in Berlin, who, after some acquaintance with Mesmer, introduced some of his treatment into the Berlin hospitals.

The value of some of the facts, apart from any theory, was warmly recognised by Dugald Stewart in 1827 (“Philosophy of Human Mind,” iii. 227), but the conditions of experiment were very inexact compared with modern requirements, and many wide inferences were drawn from insufficient evidence. There was always a tendency in some who were paying serious attention to the question to assume a somewhat mystical origin of results which the physiology of the day was certainly incompetent to explain, and for which von Reichenbach put forward as necessary a novel *odîc* force.

In *England*, Herbert Mayo (1837), as a physiologist, and Dr. John Wilson (1839) had claimed some attention for the phenomena, and they attracted Dr. Elliotson’s notice and approval when he was in a high position as physician in London, and in 1838 he thought it right to bring forward his opinions publicly in a Harveian oration. The English public had heard little of these things, and those who did not agree with him did not restrain their expression of disapproval. Elliotson resigned his professorship of medicine at University College, and for about twelve years embodied his observations in the *Zoist* (1844–1856).

Meantime, an important step was taken by Braid, a Manchester surgeon. He had seen some public performances (Nov. 1841) of a wandering hypnotist, Lafontaine, and, feeling sure that they were fraudulent, wished to expose them, and took some trouble to prepare his proofs. But in so doing he found he could produce the same phenomena as he had seen, changed his mind as to their genuineness, and offered, instead of their exposure, a physiological explanation. He laid great stress on the method of their production. He set his subjects to gaze fixedly at something bright in their hands, or, better still, between and above their eyes so that there was “a double internal and upward squint.” He observed that this was in some cases followed by a state of “nervous sleep,” in which the eyelids

closed with some vibratory motion; normal consciousness was lost; the muscles grew sometimes rigid, sometimes cataleptic, and some anæsthesia was induced. The results he attributed to the effects of the strained gaze as "paralysing the nervous centres in the eyes and their appendages, and destroying the equilibrium of the nervous system." When such a state had been induced, he fully recognised "the power of imagination, sympathy, and habit in producing the expected effects on those previously impressed."

The essay embodying these views, with illustrative cases, was rejected by the British Medical Association (June 1842), but, when published separately, attracted much attention, and the terminology (hypnotism, hypnotic, &c.), which was Braid's invention, has come into world-wide use. The method and some of its therapeutic uses were warmly advocated by Durand le Gros (writing, after his exile from France, under the name of Phillips), and preached as "Braidism" in various parts of Europe and America.

At the same time a remarkable development of hypnotic practice was going on in India, to which Europe paid little attention. James Esdaile, a surgeon high in the service of the East India Company, had, in 1845, heard something of the possibility of stopping pain by hypnotism, though he had never seen it applied, and made an attempt to carry it out in the injection of a double hydrocele, an operation which was necessarily very painful before the days of chloroform. It was so successful that the patient was unaware for several hours that any operation had been done; and many similar successes followed. A favourable report was issued by a critical commission, and in 1848 the Governor-General, Lord Dalhousie, set apart a hospital in Calcutta for this use. Esdaile accomplished, in all, 261 surgical operations in complete hypnotic unconsciousness of the patients; many of them, such as amputation above the knee, lithotomy, and others, were major operations. Before Esdaile, Récamier (1820), Cloquet (1829), and Oudet (1835) had successfully tried hypnotism as a surgical anæsthetic; but the introduction of ether and chloroform rendered it unnecessary, though subsequently, up to the present time, it has occasionally been used, partly to demonstrate its power—*e.g.*, by Fontan (1887), Mesnet (1889), and Bramwell (1890).

In France, after the practice of Du Potet (1821) and other immediate successors of Mesmer, there was no complete intermission of attention to what was

generally called animal magnetism; and one or two physicians very well known and respected for other observations, such as Azam and Broca, showed a deep interest in the matter, and supplied some important analogies from spontaneous change of personality (Felida X.) and natural somnambulism.

In the world of orthodox scientific physiology the first and most important note was struck by Charles Richet when, in 1875, he published his essay, "*Du Somnambulisme provoqué*." That furnished a solid basis of first-rate observation and experiment by a master of modern physiological method and theory, which showed the world of natural science that they had in hypnotism something more amenable to the tests of the physiological laboratory than the fancies of an imaginative enthusiast. Charcot, with quick perception of what was important among novelties, began in 1878 a determined effort on a large scale to work out the phenomena and results of hypnotism on the class of hystero-epileptics who formed a remarkable group of his patients at the Salpêtrière. The results were given to the world some four years later by P. Richer ("*Du grand Hypnotisme*," 1882), and, though admittedly drawn from the observation of a limited class of patients, were somewhat absolute in their classification, assigning to the hypnotic state three consecutive stages*—*viz.*, of lethargy, catalepsy, and somnambulism—whose physical characteristics were taught as diagnostic in the large school of his followers (Binet, Féré, Marie, Gilles de la Tourette, &c.). It was used only on hysterical patients, with little permanent therapeutic success, and the possibilities of suggestion were at first not clearly seen. The experiment, however, was on a scale and in a style that excited much notice and criticism. The physical properties of the magnet were still considered of some influence in hypnotic states, and the special sensibility of some parts or zones for excitation or termination of the hypnotism was generally accepted, and subsequently developed in more detail by Pitres in Bordeaux.

Meantime, in France, a second school of hypnotism at Nancy was founded on the practice and experience of Liébeault, which had long been overlooked. He had practised with hypnotism on his country patients for some twenty years before the general acceptance of his hypnotic methods by the scientific medical world at Nancy. In 1882, at the suggestion of Dumont, Professor of Physics, who had watched

* See ART. HYPNOTISM IN THE HYSTERICAL.

Liébeault's work, Bernheim, along with Liégeois and Beaunis, made some trial of Liébeault's conclusions, was soon convinced of their value, and began the serious task of testing the therapeutic uses of hypnotism on a large scale in the central hospital. Verbal suggestion with a few mesmeric passes was the method generally employed, and the subjects were not picked from any particular class of patients, but included everybody, and after eight years rose to a total of about 10,000. Among the hospital patients, who, as a rule, were readily inclined to obey their doctors, about half became somnambule—*i.e.*, lost consciousness of what they were doing or suffering during hypnosis, and had no memory of it afterwards; and about half the remainder showed less deep influence, by some relief from pain and some cataleptic conditions, &c., without complete loss of memory. Private patients, who were less affected by imitation, and belonged to the more educated classes, were not quite so readily affected. The chief therapeutic effects claimed were an alleviation of all but the most severe pain and discomfort, restful sleep, and some far-reaching effects of post-hypnotic suggestion, which was here used on a large scale for the first time, and with remarkable results in modifying, or indeed stopping, some morbid habits. The key-note of all the hypnotism was that it was considered as a psychical state initiated by suggestion only; and producing rest and probably some vaso-motor trophic changes.

The main lines of such treatment were eagerly taken up in Holland by van Eeden and van Renterghem (1886); in Sweden by Wetterstrand; in Switzerland (Forel, Ladame), in Italy (Vizioli, d'Abundo, &c.), and later, to a small extent, in England (Bramwell, Tuckey). In Paris also some distinguished physicians made trial of it with satisfaction (Dumontpallier, Ballet, Auguste Voisin, &c.), and others in provincial France (Gibert, Bourru, Pitres, Fontan, Ségard, &c.).

In *Germany* a similar movement had started, from different sources. A travelling mesmerist, Hansen, in 1880 surprised Heidenhain and some doctors by showing them, in private *séance*, various hypnotic results on themselves to which they had not previously paid any attention. Heidenhain at once wrote a short book attributing the phenomena to a loss of inhibitory power by the higher cerebral centres. Some discussion followed, chiefly physiological, with Berger, Preyer, Grütznert, Senator, and others; but this was at first shallow, and did not lead to any trials on a large scale or to any deep interest.

So far as the differences between the Nancy and Salpêtrière school were concerned, the German experimenters were inclined to favour the Nancy conception of the matter. Von Schrenck-Notzing (of Munich), Binswanger (of Jena), and Baierlacher (of Nuremberg) published a few good therapeutic cases, and Forel (of Zürich) made serious use of it, and furnished some clear observations showing the value of post-hypnotic suggestion in breaking off such habits as drunkenness and morphinism. Senator in Berlin opposed the movement, as also did Seeligmüller and Meynert in Vienna. Max Dessoir diffused some valuable historical information, and Moll took great pains in collecting in a handy form a summary of opinions and results from many countries which had had too little intercommunication.

In England, since the days of Esdaile (1808-1859), Braid (1795-1860), and Elliotson (1788-1863), and a few of their pupils, there has been little notice taken by the medical profession of the effects of hypnotism or its uses. There have been occasional exhibiting hypnotists who have excited some lay interest and some professional contempt, and there can be no doubt that there has been some vague and unnecessary confusion between hypnotism and spiritualism, and some fraud, in the latter at least, which has kept alive a prejudice that has combined with conservatism to retard knowledge. In 1865 Hack Tuke drew a vivid picture of hypnotism conceived as an artificial insanity (which has been to some extent revived by Rieger), and brought it into notice in his later writings. Dr. W. B. Carpenter also spent some time on its physiology and psychology.

In 1882 a Society for Psychical Research was formed in London which made it its business, among other things, to investigate hypnotism by experiment more thoroughly, and to criticise the Continental results. In this work Gurney took the lead, and after much patient inquiry in England and France, and severely accurate trials for some five years, dealt with the matter as a skilled psychologist, a trained observer, and a fearlessly impartial critic. He found the phenomena of genuine hypnotism, in English subjects at least, too varied and elaborate to be explained by the formulæ of any school, but such as to offer many problems at present most difficult for both the physiological and psychological inquirer, such as the production of local anæsthesia without contact or suggestion, and the influence of hypnotism on memory

and personality. There has been very little done in therapeutics. Some hypnotic measures have been advised by Hale White; experiments have been made at Bethlem Hospital, some suggestions from Nancy have been carried out by medical men in London, and a revival of Esdaile's practice of inducing hypnotic anæsthesia sufficiently deep to permit painless surgical operations has been accomplished by Milne Bramwell, and well described by Pridgin Teale.

Societies for experimental psychology, including hypnotism in their programme, have been established at Paris (1883), at Boston, U.S.A. (1885), at Munich (1886), at St. Petersburg and Moscow (1888), at Vienna, Rome, and elsewhere. These and the successful Congrès de Psychologie physiologique, as well as the Congrès de l'Hypnotisme at Paris in 1889, show that there is little chance now that hypnotism, though it has scarcely been accepted as a remedy in Medicine, will be allowed to fall out of notice.

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HYPNOTISM in the Hysterical.—

When, in ordinary pathology, a morbid state is studied, we must be careful to establish its individual character by a certain number of symptoms, the grouping of which does not admit of a doubt from the diagnostic point of view.

The same must be done for hypnotism, and the time is past when one could, under the pretext of suggestion, dispute about words. The mother who speaks to her child in order to induce it to perform an act that is displeasing to it, makes use of suggestion, but it is suggestion as an entirely natural phenomenon of a physiological order. Now, suggestion, as we understand it with regard to hypnotism, is nothing else than a pathological phenomenon; it is, if one likes to put it so, a symptom of hypnotism, just as rattling in the throat is one of the manifestations of pneumonia. But it is a symptom, and nothing more; it no more constitutes hypnotism than rattling in the throat constitutes pneumonia.

Definition.—Having said this, we shall define hypnotism to be an artificially produced morbid condition—a neurosis—because there is not, so far as we know, any anatomical lesion—but having none the less its definite laws.

Researches, statistics, and experiments having demonstrated that this neurosis discloses itself almost always on soil predisposed by hysteria, hysterical persons alone having exhibited to us *in their totality* the undeniable and not-to-be-simulated symptoms which in its complete development distinguish it, we think that we should here restrict ourselves to its study in the hysterical.

History justifies us, besides, in doing so, for we have clearly established that the most celebrated somnambulists since Puységur, who discovered somnambulism, have all suffered from *convulsive crises*, the hysterical nature of which is not even disputed. One of us endeavoured to show in 1878 that this morbid state, developed on such a soil, had laws which we are going to set forth.

Women, according to our experience, are much more susceptible to hypnotic manipulation than men; children and old persons are almost completely insusceptible. As regards men, the statement may seem strange that we find a very large number of cases of hysteria of the masculine gender, but the clinical fact exists none the less, and we have many times verified it in the course of recent years.

If there are hysterical women who are completely insusceptible to hypnotic experiments, on the other hand there are very few hypnotic persons who are not hysterical. And at the present time one knows that, in order to be classed as hysterical, it is not necessary to have convulsive attacks; the existence of permanent stigmata is entirely sufficient. We have remarked (in accordance with Hack Tuke's observations) that so-called natural somnambulists generally become very good hypnotic somnambulists; but, also, we have very frequently remarked the so-called natural somnambulism in the antecedents of hysterical persons.

The **methods** generally employed in order to produce the hypnotic state are very various: one of the most common consists in the fixing of the eyes on a bright object placed a little above the eyes opposite the middle line of the forehead, so that visual fatigue follows quickly, the eyes being directed in convergent strabismus (method of Braid).

Light pressure of the eyeballs with the fingers also gives good results (method of Lasègue).

These are, so to speak, lengthy processes that are employed most commonly with subjects who have not yet been subjected to these manœuvres; but after a certain time we find ourselves able to employ more rapid methods, addressing ourselves

especially to the different senses—*e.g.*, a jet of electric light, or a blow on the gong struck close to the ear of the person who is to be hypnotised. We may finally address ourselves directly to the brain of the subject by ordering him to go to sleep. But that which proves that suggestion, taken in its most general sense, takes place only in an indirect manner is that, by the aid of a stroke on the gong, struck unexpectedly, we may hypnotise a subject, so to speak, unknown to himself. Lastly, there exist sometimes on the surface of the body special regions—*zones hypnogènes*—analogous to the *zones hystériques*, which it is sufficient to press in order to induce sleep (Pitres).

Whatever be the method employed for hypnotisation, even with the most predisposed persons, it may happen that sleep does not follow with all its characteristics at the first *séance*. In a number of cases there appear at first only vague phenomena, difficult to appreciate, which are to the true phases of hypnotism what the aura is to an attack of hysteria. For the sake of lucidity and brevity, we shall have more especially in view the phenomena we can produce in a person who has already been hypnotised a certain number of times.

These different phenomena have been divided by M. Charcot into three typical states, which he calls *cataplexy*, *lethargy*, and *somnambulism*. These terms were known long before his time, but he has formularised them by showing that each of the states which they represent possesses a symptomatology peculiar to it.

Their chronological development is variable according to the individuals. Nevertheless, when in the same subject we employ the same process of experimentation, it is most frequently the state of *cataplexy* that shows itself first.

Let us fancy ourselves, then, for a moment in the presence of an individual who has already been hypnotised repeatedly, and let us place before his eyes, at the distance of some centimetres from him, a bright object, the ball of a thermometer, for instance, which we ask him to look at attentively.

If we suddenly draw away this object after the lapse of a few moments, the time depending on the susceptibility of the subject, we shall see the latter remain motionless, his eyes wide open, looking straight before him at the place that the object occupied just before, indifferent, or apparently so at least, to what happens around him. If we raise one of his arms, we observe that it remains in exactly the position in which we have placed it; the mem-

bers, all the parts of the body, lend themselves to any movement with the greatest ease, with that suppleness, that *flexibilitas cerea*, so favourable to æsthetic studies. During this time the pulse is lowered, the breathing becomes superficial, the individual is besides—in typical cases—completely insensible to cutaneous impressions; one may prick him, burn him, and he feels absolutely nothing, as, indeed, is the case in all the other hypnotic states. Lastly, he shows a remarkable *aptitude to accept certain suggestions*, which we shall study further on. He may be kept in this state for a considerable time, but of all the hypnotic states this is the one that ought to be least prolonged, for it entails very considerable fatigue; the face grows red, injected, tears flow from the eyes as a result of the absence of blinking of the eyelids, and with those subject to attacks of *grande hystérie*, if we did not arouse the patient, we should soon see one induced.

Awakening the Subject.—This is easy to bring about. It is obtained, as in all other hypnotic states, by lightly blowing on the eyes of the subject, who comes out of his sleep a little stupefied, but he mentions no feeling of suffering, and, in fact, declares that he has no recollection of anything that has happened during the hypnotic condition.

To produce the state of **lethargy**, it is sufficient either to prolong a little the time of fixation of the bright object, or to close the eyes of the cataleptic. In the first case, one observes the eyelids soon grow heavy, drop by degrees, and at last close completely. As the subject goes to sleep, there is mostly a movement of deglutition, accompanied by slight sounds in the throat. The whole system may then become completely relaxed, the subject passes into apparently profound sleep, and in well-marked cases, were he standing at the moment when the lethargy overtakes him, he must infallibly fall to the ground. During this time, the vital or organic functions—breathing, circulation, nutrition—go on just as before the hypnotisation, although the subject may be insensible to the most violent or the most painful excitations. His intelligence, too, seems completely abolished; he does not answer any of the questions that are put to him, although even at this stage he may often receive certain suggestions from the experimenter which will realise themselves when he awakes; he is, in short, plunged into the most complete coma.

Of all the hypnotic states, lethargy is the one in which we may leave the subject for the longest time without injurious

effects—say, from one to twenty hours—without his suffering from it. The awakening takes a little longer time; that is all.

By opening one eye we can determine hemi-catalepsy; in the same way, by an inverse process, we can determine, in persons who are in a cataleptic state, hemi-lethargy.

Complete lethargy presents a phenomenon of the greatest importance, as M. Charcot has demonstrated. He regards it as one of the surest characteristics of hypnosis. If you press on a muscle, it immediately contracts, producing the movement which naturally belongs to it. Further still, if, in the subjects of *la grande hystérie*, one compresses a superficial nerve—accessible, in consequence, to pressure—one determines immediately the contraction of the muscles it supplies. By pressing the ulnar nerve at the elbow we determine the attitude of the hand termed *griffe cubitale*; the same with the radial, median, and facial nerves. This contraction is very intense; the muscles are rigid, stiff; in fact, they would be torn sooner than unbend. Nevertheless, we may cause this rigidity to disappear quite easily, and without any trace of it remaining, by similar pressure or slight friction on the antagonist muscles of the contracted ones.

This phenomenon of neuro-muscular hyper-excitability is of the greatest importance and interest in the natural history of hypnotism. It must be placed by the side of the “diathesis of contraction,” studied by one of us in the hysterical. They are two states of the same order, which we shall find again in the interpretation of the intimate ties that connect hypnotic and hysterical neuroses.

The **somnambulistic state** is more difficult to produce from the outset than the preceding ones. It is easily brought about, however, by transforming one of the already mentioned kindred states. It is sufficient, then, to apply a slight friction to the vertex with the palm of the hand or the tips of the fingers to induce it. It is doubtless true that this reflex action of the vertex is still without an explanation from any known principles of physiology; it is a purely clinical authenticated fact, but a fact, nevertheless, whatever it may connote, which must retain its value.

If, for instance, we lightly rub the vertex of a person in the lethargic state, we uniformly see the aspect of the scene change immediately. The subject generally gives a little sigh, which is, so to speak, the indication of his return to the outside world, if not to complete consciousness,

for his brain is about to become like so much soft wax, upon which all the impressions, all the suggestions, coming from the experimenter will engrave themselves.

Before speaking of these suggestions, let us remark that in the somnambulistic stage the neuro-muscular hyper-excitability still exists to a large degree, but it has become transformed. It is no longer by hard pressure or friction of the muscles or compressing the nerves that it is brought about; it is, on the contrary, a simple, superficial, purely cutaneous stimulation which makes the underlying muscles contract. Lightly pressing anything over the skin—the displacement of the stratum of surrounding air—is sufficient to produce this effect. This *somnambulistic contraction* is removed, in the same manner as the *lethargic contraction*, by acting on the antagonist muscles by slight friction.

It seems, moreover, as if in the somnambulistic stage, every sensation—all the special senses—were exalted to a supreme degree, at least latently. Let us explain: There are two great classes of somnambulists, the *tranquil* and the *agitated*, corresponding pretty well physically to the closure and to the opening of the eyes. In the first the eyelids are almost closed; in the second the eyes are wide open. It follows that the somnambulist who has his eyes open becomes, by reason of the mental condition that is peculiar to his state, the sport of a crowd of sensorial illusions, while he who has his eyes shut remains motionless and calm just in the position in which somnambulism has, so to say, surprised him.

Suggestion.—Both, however, present a very peculiar mental state; they are eminently receptive—that is to say, their brains assent with singular accommodation to all the suggestions coming from the experimenter.

It is not our intention to study one by one all the suggestions, the diversity of which is, in fact, much more apparent than real. What it is especially necessary to know is that the somnambulist is not always an entirely passive being; often he examines the suggestion made to him; *his credulity has its limits*. This restriction is highly important with regard to the suggestions termed “criminal.” It seems, indeed, proved by most careful observation that, if it is possible to make an attack on the modesty of a female plunged in hypnotic lethargy, it is impossible, *as a matter of fact*, to make a somnambulist agree to commit an actual crime. In medico-legal medicine cases of violation are numerous enough, and yet

there does not exist a single case in which a somnambulist has acted criminally under the influence of suggestion.

Receptivity is not peculiar to the somnambulistic state; we have seen that it may be present in that of lethargy; we meet with it in catalepsy, where its study is most inviting, for there it defies all simulation. If certain cataleptics are as directly suggestible as the best somnambulists, it is no less sure that the majority present in this matter quite a peculiar reaction.

In this class we shall put in the first place *suggestion by gesture*. The cataleptic is motionless; his face is without expression. But if you place before his mouth his own fingers in the attitude of a person who sends a kiss, immediately his face becomes smiling, and the body bends forward in a corresponding attitude. The gesture has suggested the idea, but such is the automatism in this state that the attitude, once it has been assumed, remains. The cataleptic would thus smile everlastingly, could the cataleptic state likewise be prolonged indefinitely. We may thus, by closing the fists, determine the attitude of anger. It must be understood that some cataleptics are better subjects than others for the realisation of such experiments.

But there is a whole class of experiments still more interesting, if possible, than these. Every one knows that the splendid researches of Duchenne (Boulogne) enabled this eminent observer to determine, by the help of localised electricity, the precise functions of the facial muscles and their combination in the play of the features. Let us, in a cataleptic, set in motion by the help of faradic electricity, the naso-pyramidal muscle—*muscle de l'agression* of Duchenne. Immediately the muscle begins to work, but its motion reacts on the congeners of the muscle, which habitually concur in its action, the eyebrows contract, and the person himself completes the movement by assuming an aggressive attitude. The instant the gesture suggests the idea, the muscle, an element of the gesture, in its turn solicits the idea and the carrying out of the same. The idea has been originated and has been carried out into action by a mechanism inverse to that which ordinarily directs its evolution.

Hypnotism a rich Field for Psychological Study.—The succinct exposition of these facts shows us the advantages that hypnotism offers for the study of certain delicate and as yet obscure processes of physiology, as also, from the point of view of psychology, it may be of

enormous help in studying the complex mechanism of thought.

These are advantages which may well exceed others in their value, for, from a *therapeutical point of view*, for example, hypnotism has not so far given all the results that we were justified in expecting from it. Its scope of action is limited. Contrary to what might have been expected *à priori*, its action on this neurosis (hysteria) is restricted. Moreover, we may not employ it at random for the sake of clinical results; for it may be better, for example, to bear neuralgia for some time than to risk bringing on an attack of hysteria. It will, in fact, often happen that, in place of the hypnotism we are trying to induce, hysterical symptoms will arise, the former having acted as a provocative agent to the latter.

Hypnotism and Hysteria.—This leads us to speak of the points of analogy which connect hypnotism with hysteria. They are numerous. The hysterical soil, we have said, is that on which, by preference, hypnotism springs up; it is there that it puts out branches which allow us to study it in the best possible manner.

In hysteria we meet lethargic, cataleptic, and somnambulistic manifestations, which are so analogous to similar manifestations of hypnotism, that Pitres, Vizioli, Ladame, Chambard, and Mochowkowsky have shown the transmutations that are possible between hypnotic and hysterical somnambulism. Has not Mochowkowsky entitled his book "The Hysterical Forms of Hypnotism"?

From the *somatic* point of view, the points of resemblance are still more evident. The *diathesis of hysterical contraction* is well known. How can we avoid seeing an analogy between it and the cataleptic rigidity, and the lethargic and somnambulistic, neuro-muscular hyper-excitability? They are, no doubt, phenomena of the same order.

The second, or cataleptic, state, so well described by Dr. Azam, of Bordeaux, seems to be only a prolonged hysterical somnambulism: the patient does not remember what she has done in a former state of somnambulism, except when she returns to a second period of the same state. So it is with the hypnotic somnambulist, who does not remember what he has done in a former period of somnambulism until he is in another similar period. In both, oblivion exists in the intermediate state.

Lastly, it must be known that hypnotism may arise spontaneously, with all its somatic and psychological symptoms. These are cases to which Vizioli has also

drawn attention, and which he has described by the name of *hypnotismo-spontaneo-autonomo*.

These cases do not differ in any point from the cases of induced hypnotism; and, again, it is among the hysterical that they may be found. In presence of such facts, what do the authors say who think suggestion explains everything in hypnotism? And let it not be said that these are incomplete cases. We are observing at this moment, in the service of the Salpêtrière, two patients who spontaneously, in the absence of any provocative manipulation, present in their totality the most complete psychical and somatic phenomena of the hypnotic state. These are cases of prolonged sleep analogous to the second state which we observe in hysteria.

By the side of the *grand hypnotisme* we have been describing there exist forms, that are perhaps widespread, of slight hypnosis. Imperfect somatic phenomena intermingle with psychical phenomena; perhaps, even, the former may be completely absent, just as we may see cases of hysteria without stigmata. In these cases suggestion is to a certain degree realisable, and it may be utilised for therapeutic ends, but the higher hypnotism alone seems to us to be of use for nosographic and medico-legal studies, on account of the incontestable guarantees it affords, and upon which we may always rely so as to avoid falling into error.

Lastly, it is quite another class of facts to which one of us, with the co-operation of M. Cathelèneau, has drawn attention. We have proved that an attack of hysteria, whatever form it may take—lethargic, cataleptic, or somnambulistic—was indicated by the solid residue of the urine.

Now, our researches have led us to prove that, by putting an individual for, say, an hour in the lethargic, cataleptic, or somnambulistic state of indisputable hypnotism, we observe identically the same phenomena.

Now, it cannot be said that these are phenomena due to suggestion, for our patients, whose urine was drawn off by the catheter, were completely ignorant as to what we were looking for, and we do not know how it should be possible for a person to influence by the will an element like urea, of which he does not know even the name.

To sum up, we say: There is a morbid state, to be classed under the order of neuroses (till we obtain more ample information), characterised, in the most completely developed cases, by psychical phenomena

that are forgotten on waking, *e.g.*, impressionability by gesture or by the exaltation of a muscle of specialised function; by somnambulant phenomena, neuro-muscular hyper-excitability under different forms; and by modifications, that are always the same, of the urinary excretion.

This neurosis has, under the name of hypnotism, been evolved, in an immense majority of cases, on a soil prepared by hysteria, with which it has so many points in common.

In reality there is no more a minor than a major hypnotism; there exists neither *petite* nor *grande* hysteria. There is hypnotism, and there is hysteria—definite maladies having their perfectly established laws. Amid these well-defined elements suggestion certainly holds a large place, but this is not more considerable than that which must be assigned to the somatic phenomena. For, indeed, if the psychical phenomena are susceptible of being simulated, the same cannot be said of the physical ones (neuro-muscular hyper-excitability, altered respiration in the cataleptic state, and urinary excretion), which are completely independent of the will of the subject in the hypnotic state.

J. M. CHARCOT.

GILLES DE LA TOURETTE.

HYPOBULIA (*ὑπό*, under (diminutive prefix); *βουλή*, the will). A defective power of exercising the will such as is specially observed in certain patients.

HYPOCATALEPSIS (*ὑπό*; *κατάληψις*, a seizing). A name given to the slightest or imperfect degree of epilepsy. The *petit mal* of the French.

HYPOCHONDRIAC (*ὑπό*; *χόνδρος*, the cartilage; the name given from the idea that the affection originated in that region). A term applied to one affected with hypochondriasis.

HYPOCHONDRIASIS, DELIRIOUS (*ὑπό*; *χόνδρος*; *deliro*, I rave). A synonym of Nosomania (*q.v.*). (Fr. *hypochondrie délirante*.)

HYPOCHONDRIASIS, SYPHILITIC (*ὑπό*; *χόνδρος*; *σύν*, with; *φιλέω*, I love). A synonym of Syphilomania (*q.v.*). (Fr. *hypochondrie syphilitique*.)

HYPOCHONDRIASIS AND INSANITY.—The word hypochondriasis has a very wide meaning, and includes forms of insanity, as well as many disorders which cannot properly be so called. Under this name we shall have to describe a nervous disorder varying from slight over-sensitiveness to insanity with marked delusions and actively suicidal tendencies. By many writers hypochondriasis is not looked upon as an

insanity at all, but Griesinger and others, with whom we agree, look upon most cases of hypochondriasis as related to insanity in one way or another. Insane or neurotic parentage is common in the hypochondriacal. It has been called *folie raisonnante mélancholique* — a form of melancholia in which, though there is mental depression, it is not necessary that there should be any delusions or hallucinations of the senses, the reasoning faculties may be unimpaired apart from the dominance of certain sensations which cause the special set of ideas with which they are connected to be brought into undue prominence. In hypochondriasis there is a feeling of profound illness and a tendency to exaggerate the feelings and to brood over them. Hypochondriasis as met with among the sane does not interfere with the ordinary occupations of life of the patient. It has been described as a disease occurring mostly among men of middle age, and it has been compared with hysteria, being considered by some as the equivalent of that disease among men.

We are inclined to look upon hypochondriasis from two different points of view; in one we consider that it is rather a form of imperfect evolution and in the other it is a form of nervous dissolution.

In the former, the performance of the bodily functions, which should have become so established as to be automatic as far as feeling is concerned, have not developed so far, but remain in the conscious stage, and on the other hand there are conditions of age and disease in which the functions, which have been for years performed unconsciously, again become consciously performed. To take examples, the child learns to use its limbs slowly and with effort, but the time comes when acts of the most complicated kind are performed without any conscious adaptation of means to ends. With age or illness there may be a return to conscious movements.

We believe that many other functions, such as that of digestion for instance, go through a conscious stage to pass to one of healthy unconsciousness. In one or two cases we have met with patients who have never got over this stage of conscious digestion, and the numbers who in states of ill health or degeneration once more become morbidly conscious of the digestion needs not to be recalled. The constant conscious repetition of sensations, which in the individual or in the race ought to be unconscious, leads to morbid introspection and hypochondriasis; such is our contention.

The hypochondriasis which we shall have more especially now to describe is met with in both sexes and at all ages after extreme youth. Hypochondriasis may be a neurosis, a disorder of function and nothing more, or it may be a symptom of organic disease of some bodily organ, or it may be a symptom of disease of the brain such as general paralysis. It varies in degree as we have already said, and we would prefer to compare it once more with hysteria; thus, just as hysteria passes insensibly into mania, so, hypochondriasis passes insensibly into forms of melancholia. Distinctions have been made between melancholia and hypochondriasis to which we shall refer later, though, for our own part, we do not think such distinctions are of any real importance. Hypochondriasis, then, is the interpretation in a special exaggerated or unnatural and unreasonable way of certain bodily sensations. Before delusions arise in ordinary melancholy, it is common to meet with a stage of simple depression in which the feeling of ill-being is so powerful that it concentrates all the patient's attention upon himself and his feelings—the saturated solution of grief without a crystallised delusion. In hypochondriasis a similar stage exists, and whereas in melancholia the patient generally manages to explain his illness from some outside cause, in hypochondriasis the ill-feeling is explained by some supposed disorder or disease of the body itself. In hysteria, emotional disorder predominates, whereas in hypochondriasis the failing is in sensation. In hypochondriasis any emotional depression proceeds from a strong feeling of bodily illness which fixes the attention of the patient. This feeling may be vague and general, or special and particular. It may be associated with some peripheral nerve irritation or may be provoked centrally, either by moral or physical exciting causes. The feeling is increased and aggravated by attention, and it may be transferred from one part of the body to another; the association of ideas as a rule is unimpaired. The disposition of the patient slowly changes so that the kindly and unselfish man becomes selfish and egotistical. That bodily weakness exists at the same time is shown by the facility with which these patients become fatigued. It is common to meet with temporary remissions in the symptoms before they become as it were fixed. Hypochondriasis may lead to loss of self-control, with weariness of life, so that suicidal acts may result. Any part of the sensory nervous system may be affected, and although

hallucinations are uncommon, yet they may occasionally be present. Illusions or false interpretations of ordinary sensations occur rather than hallucinations; delusions may arise, in fact, the misinterpretation of the feeling is itself really a false judgment. In no other form of insanity is the explanation of morbid feelings so clearly seen to be the foundation of the insanity. Diseases are coined to suit the sensations of the patient. Hypochondriasis and melancholia are alike in most of their symptoms, differing more in degree than in anything else, the morbid sensations are most marked in hypochondriasis, while morbid feelings characterise melancholia. The hypochondriac, whether sane or insane, studies his pulse, his tongue, and his bodily functions, whereas the truly melancholic patient is occupied as a rule with his own thoughts. There is no essential difference between the man who is always considering the state of his digestion, and the man who is always considering the state of his mind. In many cases of hypochondriasis the patient is morbidly conscious of his own illness, and is constantly willing to pour out his miseries to those about him, so that, while the melancholy man broods unoccupied and alone over his miseries, the hypochondriac has many confidants. Restlessness and weakness of Will are very characteristic, the memory itself is not necessarily defective, but as memory to a great extent depends upon attention, so the attention being fixed upon a small set of ideas, the memory of the hypochondriac appears to be defective from want of attention. Hypochondriasis very commonly remains for many years without any change; it is, when fully developed, essentially a chronic disease. It is rare to meet with cases of hypochondriasis ending in dementia. It seems as if a special disorder of function causing concentration of ideas and limitation of interests produces a new arrangement of mental powers, which is quite compatible with prolonged existence with little or no real loss of mental power. The hypochondriac generally suffers from some bodily disorder and may suffer from real disease. The hypochondriasis may be either only an exaggeration of real symptoms or the insane interpretation of purely functional disorders. Sleep is bad or unrefreshing, the tongue generally tremulous, moist and flabby, appetite disordered, frequently defective, digestion bad, flatulence common, and constipation the rule. The other bodily functions suffer more or less in the same way. If the hypochondriasis depend upon any real

bodily disease, the course of the hypochondriasis and the prognosis as well as the treatment must depend entirely upon the diseased condition which gives rise to the exaggeration of the nervous symptoms. If, on the other hand, hypochondriasis occurs in young patients, otherwise thoroughly healthy from a nervous standpoint, there is a fair prospect of recovery, with early and appropriate treatment. If these symptoms occur at the climacteric the prognosis is still not unfavourable, but if the disease first show itself after fifty, or continue to develop from middle life for some years, and have become fully organised, the explanations being always similar, the prognosis becomes essentially bad.

In the above description we have given a sketch of the more common symptoms occurring in hypochondriasis as a whole, and we shall next proceed to point out the divisions under which we propose to study the disorder.

As said above, the symptoms may be *general or particular*. Under the head of general hypochondriasis we place patients who have a vague idea that some bodily ailment affects them, or that from some cause, known or unknown to themselves, they are dying. One meets young patients occasionally who believe that from some error, moral or physical, such as sexual vice, they are so completely injured in health that they are bound to die, and that nothing can save them. In these cases, as a rule, we meet with bloodlessness, loss of appetite, cold extremities and feeble circulation associated with imperfect performance of all the bodily functions. If removed from their old surroundings, placed in genial company amidst healthy conditions, they will, in the course of several months, frequently recover. In these cases we believe good, light, invalid diet, comprising beef-tea, fish, and the like, in addition to some form of alcoholic stimulant, out-of-door exercise, a sea voyage, or the like, will be most likely to be of service.

A similar group of symptoms is frequently met with in both men and women between thirty and forty. In these cases, almost always, there has been an unhealthy solitude or want of object in life, so that an unhealthy subjective life has been led. This has been followed by the other physical symptoms of bad digestion and malnutrition, and slowly, from being a dyspeptic, the patient has become hypochondriacal. In some of these cases a real illness starts the hypochondriasis. Thus, a woman of about forty, who had lived in the tropics, was attacked by

dysentery, and reduced to an extreme state of weakness, for which she was sent on a sea voyage, and later to her native country. By the time she reached home she was fully convinced that she was dying, that nothing could save her, and that it was wicked and blasphemous for her to take food as she was quite unable to digest it, and that taking food was nothing but wasting God's mercies. Residence in an asylum and enforced feeding improved the physical health, though it only partly affected the hypochondriasis. There are many other forms which general hypochondriasis assumes. Some persons believe that they are infected by some constitutional disease, one person saying that he has some peculiar form of scrofula, while another thinks that he is the victim of hydrophobia or syphilis. In some cases we are inclined to think that uneasy peripheral nervous sensations give rise to various insane interpretations, so that an alcoholic patient may for the time develop hypochondriacal ideas. Besides the above cases of general hypochondriasis, one meets with more specialised varieties, in which, nevertheless, the feeling of general disorder is most marked. Thus, while one patient believes himself to be affected from without, another thinks that his blood is in some way peculiar; and it is not uncommon to meet with patients who maintain that they are conscious of the circulation of their blood. In some cases we shall point out later that these blood feelings are also met with in some particular forms of hypochondriasis.

With breathing, as well as with circulation, there may be uneasy feelings, and we are particularly interested in the connection which seems to exist between some forms of asthma and hypochondriasis. Thus, as we have shown in *ALTERATION OF NEUROSES*, an alteration may exist between various forms of insanity and asthmatic breathing, one of the forms being hypochondriasis. We have met with every variety of hypochondriacal or asthmatic breathing, extending from slightly conscious breathing which interfered with sleep, up to the most desperate asthmatic attacks, which leave the patient worn out and exhausted. In some of the slighter forms we meet with connecting links which seem to approximate the hysterical difficulty of breathing with hypochondriacal breathing consciousness. Suffice it to say that it is not uncommon to meet with cases in which, though there is some difficulty or uneasiness of breathing, this is but slight in comparison with the interpretations and explanations to which it gives rise. When considering presently

the cases of throat hypochondriasis, we shall further speak of the cases allied to asthma.

Besides symptoms arranged or grouped so as to resemble recognised diseases, there may be isolated symptoms which are hypochondriacally considered. Thus, a man of middle age may believe, because he is slightly rheumatic or gouty, and is not able to move as freely as he once could, that he is dying of paralysis; while another man a little older, with slight tinglings in his fingers, or with some peculiar twitchings about the muscles of his face, real or imaginary, is convinced that he has only a short time to live, as an apoplectic fit is imminent. Another patient who does not sleep as well as he did is desperately concerned in consequence, and cannot keep his mind free from thinking about his bad nights. It is normal for an elderly man to sleep less than a younger one, but this is not recognised by many, who literally worry themselves out of their minds because they do not sleep. It is the same with appetite. We frequently meet men who are much distressed, and who cannot refrain from talking and thinking about their decreasing strength and health, chiefly in relationship to their want of appetite.

So far, we have only referred to cases in which general, more or less vague, feelings of illness have been interpreted in a more or less exaggerated and unreasonable way, yet in which there has been disorder enough to prevent the patient performing his duties. Now we shall consider the more special forms of hypochondriasis under three different heads, hypochondriasis of the head, hypochondriasis of the digestive tract, and, thirdly, reproductive hypochondriasis.

(1) **Head Hypochondriasis.**—It might with propriety rather be called brain hypochondriasis, for in these cases the one complaint is of brain feeling and brain disorder. The insane interpretations extend from a mere exaggerated consciousness of thought, through a feeling of inability to think, or agony when thinking, up to a feeling of complete deadness in the brain itself. Headaches are rare among the insane, but brain-aches of one kind and another are common. Brain hypochondriasis is met with in the three different ages to which we have already referred. Thus, in young, self-conscious patients it is common to meet with complaints of uneasy feelings at the vertex, and this is interesting, for just as we meet with respiratory hypochondriasis allied to hysteria, so we meet with this vertical brain-ache in these youthful emo-

tional hypochondriacs. The interpretation of these uneasy feelings is endless; many patients will say that they feel their thoughts take shape, as it were, in their brains, and that this is a painful process; others will say that they feel their brain has softened; while still others assert that by some peculiar process their brains have been destroyed. One patient told us that all his brain had been run off as an amalgam down his spinal cord, while another believed that an attack of diarrhoea had something to do with his lost brain. In one case scrofula and in another syphilis were supposed to have damaged the brain. In some there are complaints that the brain is swollen, while in others the feeling is described as that of a shrinking of the brain. In some every attempt at effort or will is said to be followed by a most painful creaking or splitting of the brain. Suffice it to say that there is no uneasy bodily sensation with which we are familiar which may not be transferred to the brain by the hypochondriac. In the young cases to which we are now referring there is a fair prospect of recovery; but if within a year the symptoms have not passed off, especially if the bodily health has been re-established, little good is likely to follow, and the patient will probably pass into a condition of chronic hypochondriasis, in which he may live the ordinary length of human life. Brain hypochondriasis is also met with in men and women of middle age. It is not uncommon in puerperal cases and in gouty patients of both sexes. These older cases are much more nearly connected with ordinary hypochondriasis, and especially in men are much more likely to become chronic and incurable than those of the last group. The symptoms as a rule develop slowly, and frequently occur in men who have already some knowledge of anatomy and physiology; the best examples which we have ever met have occurred in members of the medical profession, though others when they begin to be hypochondriacs very soon take to medical studies in a dangerously amateurish fashion, which leads them into the hands of quacks, who play and prey upon their weakness. As we have said, the symptoms develop generally slowly, the appetite fails, the sleep is disturbed, and frequently there has been some moment at which a shock of some kind seems to have occurred. At all events, it is common to be told that the patient on a certain day, under special conditions, felt something give way in his brain, or else felt as if a flood of something hot like blood had

been poured over its surface. From that time he has had no peace, and has never been able to remove his thoughts from his brain. The voluminous description of the symptoms, the frequency with which doctors are consulted and changed, the desire evinced for new prescriptions, though as a rule the directions are never persistently and conscientiously carried out, are eminently characteristic. The brain hypochondriac, like his brothers later to be described, has no persistence as a rule even in seeking to attain what he appears most to desire. A fresh doctor and a new treatment may satisfy for a short time, but that is all. Brain hypochondriasis, as met with in middle-aged men and more rarely in middle-aged women, is a very hopeless disease. We know of no general or special pathology associated with it, and, as far as treatment is concerned, change of scene, absence of medical treatment, baths, a sea voyage, and the like, will do more good than gold, arsenic, or iron. Generally these patients become so completely absorbed in their own feelings that they are quite unable to follow their profession or calling. They will starve, but cannot work; their lives are, however, little, if at all, shortened. Brain hypochondriasis may occur alone or may be associated with other forms of hypochondriasis, and also may be associated with certain forms of loss of self-control. There is rarely, if ever, suicide or homicidal violence, though it is common to be told by patients that their sufferings were more than they can bear. Impulsively destructive acts are not common. In many cases such patients are quite capable of giving evidence or of settling their property, and recognise their responsibility to society. In old age one also meets occasionally with ideas that the brain is wasted alone, or in association with the idea that the patient is going out of his mind, or is going to be maltreated in some way by fortune or his fellows. Such cases, as a rule, pass from simple hypochondriasis into distinct senile melancholia, in which the prognosis is unfavourable.

In women at the climacteric it is not uncommon to meet with similar complaints of brain distress, some saying that they have felt something give way in their brains, and it is interesting that there is a whole series of bodily feelings which are always explained in the same words by different patients "a giving way" is one of these; thus, a giving way of something in the head, or of something about the womb, is quite a common expression. In women about the climacteric the head feelings may

pass off with time, though they frequently develop into true melancholia, or may be associated with other morbid sensory troubles, such as hallucinations of hearing. In some the feeling is described as being like that which would be produced by a cutting off of the brain; in others, there is a feeling of deadness in the brain, with complete loss of sympathy and feeling. This feeling of "deadness and unnaturalness," which is frequently met with in insanity, is in some way connected with the reproductive functions. We believe that these brain hypochondriacs are very frequently suffering from sexual disorder in one way or another.

(2) **Hypochondriasis of the Digestive Tract.**—This we divide into hypochondriasis of the throat, and of the gastro-intestinal tract, referred to the epigastrium and the rectum. As before said, there are uneasy feelings associated with the throat, nearly allied to hysteria, and we have met with a good many young emotional men who had ideas that they could not swallow. These cases, like those of young brain hypochondriacs, are fairly curable, are generally associated with some physical conditions of weakness and nervous exhaustion, often due to masturbation. The symptoms may either pass off with improved health, may become more or less organised and associated with delusions of persecution, in which case they are less hopeful, or they may become chronic and remain a life-long hypochondriasis. The feelings of throat obstruction generally are associated with more or less idea of asphyxia, so that patients will not only refuse food, because, as they say, they cannot swallow, but also because the food seems to interfere with their breathing. Paroxysms of difficulty of swallowing occur in these cases, and one patient will complain that he can swallow only liquids, while another will tell you that he can take only solids, and undoubtedly it is among some of these that we are to look for false hydrophobia. We have met with several young cases which, starting with the feeling of constriction about the throat, and hearing of rabies and hydrophobia, have become convinced that they are suffering from the latter.

In these cases, as in those suffering from head hypochondriasis, the interpretations are almost endless, one patient asserted that there was some form of paralysis which prevented him from swallowing, while another was fully convinced that he had cancer affecting the throat. In this latter case the patient was sent to a throat specialist whose judgment did not alter the idea that there was coarse disease

which ought to have been visible to any one. In this case years have passed, and he is still fully occupied on his throat condition, and though others depend upon him he still declares his inability to earn a living. In older cases this throat hypochondriasis in a simple form is less frequently met with. We have met with one elderly patient subject to recurring attacks of mental depression in whom a feeling of obstruction always recurred, so that in three distinct and separate attacks of mental depression he came under treatment for refusing his food, with the idea that the throat was permanently blocked. In his case rest and general treatment has always been followed by relief. In several other cases a feeling of obstruction was associated with gouty histories, and in these it seems to me that the alliance between hypochondriasis and asthma is further shown. Though unfavourable, these cases associated with gout are not so hopeless as those of young middle-aged men who slowly develop the false ideas which ultimately become fully organised. In treating these cases we generally pass a tube to show that the œsophagus is patent, and let the patient be examined by a laryngologist; we next explain to the patient that his condition is nearly allied to that of the girl who is hysterically choking; we give tonics, baths, and aperients, and try to persuade the patient to take up some definite occupation or amusement, so that he may be taken out of himself and his narrowing feelings. This group of cases is neither more nor less curable than those already considered. Next, we have to speak of what by many would be called true hypochondriasis. The "yearning of the bowels" of the psalmist and other commonly recognised expressions, all point to the natural association between the pit of the stomach and emotional disorder. The majority of those hypochondriacs who flit from physician to physician, and from quack to quack, are patients who have epigastric or gastro-intestinal hypochondriasis. It is a common medical belief that in nearly all these cases there is some dypseptic trouble, and it is certain that among these cases symptoms of gastro-intestinal disorder most commonly exist. Some patients complain only of a persistent weight or sinking at the epigastrium, while others go a step further and say that they are convinced that some obstruction, cancerous or otherwise, affects their stomach, while a third will say that some rupture has taken place, so that at the end of the gullet there is a huge cavity into which all food passes. Yet another

group of cases say that there is some abnormal association between their gastrointestinal tract and their circulation, so that they feel everything that they swallow circulating in their veins; one patient saying that he felt potatoes moving under his skin, while another said that everything he ate seemed to pass along his limbs like bullets. The form of explanation is nearly related to the intensity of feeling, the general habits, and education of the individual. It is less common to meet with these cases among young men or among women than among middle-aged men. We used to think that there was a distinct connection between the development of these symptoms and the habits of the patient, so that a man who by coarse eating and excessive drinking had produced a chronic condition of dyspepsia, was more liable to suffer than another, but we are inclined to think that there must be still something more in the constitutional structure of the man himself.

Many of these cases refuse food, and will argue about the state they are in; these are not to be readily separated from cases of melancholia, in fact, we prefer to look upon them as cases of melancholia, in which there is a hypochondriacal interpretation. In some of these cases there is a periodicity about the miserable feeling, so that a patient may wake up well, then gradually become distressed a certain time after each meal. One such patient in Bethlem would be bright and pleasant, asking to be discharged as he was sure he was well, and would have no more bother, yet each day after dinner his miseries returned and no dieting or treatment made any difference to him. He passed into a state of chronic hypochondriasis, with suicidal tendencies. Though patients with head hypochondriasis are rarely suicidal, yet those with epigastric trouble are now and then very desperate. One of the most determined suicides we ever knew was by an elderly man who was persuaded that he had permanent obstruction of the bowels.

Patients with these feelings will cut open their abdomens to give vent to the collections which they believe to be there, they will suggest the most ingenious operations so that the defects may be repaired. One patient we had gave us a sketch of himself on the operating table while the intestines of a pig were being transferred to him.

The feeling of obstruction may exist alone, but it is not uncommon for other symptoms or interpretations also to arise. Patients tell you that they can feel their food descend to a certain point and that

then it drops (one told us) with a splash into a cloacal cavity. In these, as in the earlier cases of the same kind, the patients constantly assert that nothing ever passes through them. One told us that the only way to get rid of such a mass of corruption was to have him blown up by dynamite. We shall not need to say more than that the various interpretations of these feelings are almost without end; but next we must refer very briefly to the fact that there are several distinct varieties of nervous disease in which the complaint of obstruction is commonly made, beside those already referred to, as in some cases of senile melancholia, in which the prospect is very bad, and in a certain number of cases of general paralysis of the insane. As to these latter cases it was long observed that fatal cases of this type occurred before they were recognised to belong to the class of general paralytics. These cases pass, as a rule, through a period of acute hypochondriacal misery, which is followed by a stage of fatness and fatuity in which fits may occur, which precede the true stage of paralytic dementia. In some cases the stage of hypochondriasis alternates with one of exaltation or of contentment. It is said that in some of these cases adhesions between the cortex and membranes of the brain have been found to exist over the orbital surface of the frontal lobes, but we have no evidence to corroborate this.

The last group of cases contains those in which the feeling is centred about the anus, and in these the idea is that there is a permanent closure of the bowel at its lower end, or that control of the bowel is lost. In some there is an idea that this is due to cancer, in others that it is an entirely novel and unique experience of slowly closing of the bowel. In a few we believe it is associated with neuralgic pains due to spinal disease. This may occur with locomotor ataxic symptoms.

Most of the cases to which we refer occur, in our experience, in elderly men, and are chronic, if not incurable. One of the most trying symptoms is that the patients are constantly introducing their fingers into the bowel and keeping them up the passage for some time, thus the finger nails are frequently stained an orange colour. The fancy of anal occlusion may be associated with others of the same kind, such as that there is obstruction at other parts of the bowel. We believe the only treatment is palliative in the older cases. Tonics, quinine and aloes, and iron and aloes mixture may be tried.

Galvanism of the bowel or massage of the abdomen is also worth trying, while some relief follows water compresses.

There is one group of cases in which the symptom is the reverse of obstruction, the patients thinking that they have not the proper control of the bowels, and that they will be obliged to leave the society in which they are, to relieve themselves. Most persons know that with nervous anxiety there is a tendency to this feeling, but in some the result is such that the patient either fears to leave his own narrow surroundings, or else when abroad may run the risk of being misunderstood, from the urgency of the feeling causing him to seek unsuitable places. In one such case accusations of indecent exposure followed the acts, which were shown to have been in no way evil in intention.

In our experience such feelings are frequently associated with sexual disorder of some kind, and we believe that this feeling, as well as real loss of power over the bladder, in sleep especially, is common in excessive masturbators. In a few instances we have met with a similar hypochondriacal feeling in patients who have suffered from some severe intestinal trouble, this being a nervous residuum.

In old men, too, it may occur alone or with some bladder or prostatic affection.

Sexual Hypochondriasis.—This may occur in either sex and at any age. It is not so common among women, at all events in its fully developed character, as might have been expected. In both young men and women it may be nearly allied to hysteria, being associated with emotional disturbance. It is common in the nervously unstable by inheritance; it is almost always associated with physical weakness, and is common in patients who have been early and frequent masturbators. It may be associated in young women with some menstrual disorder, either amenorrhœa or profuse discharge. The onset is generally slow, thus the young man begins to think that he is losing his virility, and often falls into the hands of quacks who support this fancy. A course of drugs, electricity or the like, is still followed by no relief to the self-conscious weakness, and sleeplessness follows with distaste for food and inability to perform work. This occurs with a profound feeling of misery and may lead to suicide. These cases are very suicidal; in some the idea of getting married for a time occupies the patient, but it is common to meet with such a history in young men who have committed suicide on the eve of their marriage, and it is not uncommon to hear a like history from some who, after

marriage, have found themselves impotent, and who are equally suicidal. The dwelling on the function of reproduction is almost sure to make the performance of it more difficult or even impossible.

The structure of these cases generally is first, indulgence to excess in early masturbation, then either an ignorant dread of seminal emissions, or an exaggerated fear of the effect of masturbation. Some change in the sexual relations may lead to an idea of impotence which is one of the most dangerous symptoms from a suicidal point of view—*e.g.*, over-indulgence of the passion, the entering on a marriage engagement, or complete continence in every way, associated with a constant dwelling on sexual matters.

As to treatment, there are some things which you may do, and others which you may not. We believe that general measures, occupation, travel and the like are good; marriage is not to be thought of as a means of cure, and promiscuous intercourse is not to be recommended from a medical man's point of view. It must not be forgotten that in some cases the complete suppression of the sexual instinct may lead to depression and danger, yet the letting loose of passion by command is dangerous. In young women with a similar history there is no such idea as that of impotence, but there is a feeling of self-conscious misery which must be considered as its equivalent. In these cases there is the same unhealthy dwelling on the feelings, and on the "ego" with its perversions, but as a rule the idea and the complaint is that the patient has become isolated, no one caring for her, without love or affection, and deadness to natural desires. In some who have been left in complete innocence and ignorance, for such do occur, there may arise a sexual hypochondriasis associated with normal sexual feelings, or with the occurrence of the menses or of strange lascivious dreams.

The **prognosis** is fair in these cases if change, tonics, and general stimulating measures, such as baths, be tried.

In middle-aged men and women similar ideas may arise, the man becoming in some cases not only suicidal but dangerous to others, developing ideas of persecution. In men these sexual hypochondriacal fancies may be associated with sexual excess, the result, in fact, of a *blasé* state, or they may arise as the earlier ones, already considered, from masturbation and self-contemplative habits. In women the fancies may lead the patients, generally single women who have led unnaturally quiet and solitary

lives, to believe that liberties are being or have been taken with them. We here meet with another border line, on the one side of which we have the cases in which there is definite delirium or persecution, and on the other markedly hypochondriacal fancies, such as that the vagina has been torn, that there is a passage between the vagina and rectum, that the womb has been in some way injured. We have met with one such woman who accused certain persons of doing the injury to her, so that it must not be overlooked that there is danger of false accusations arising in these cases.

In women it is rare to meet with suicidal symptoms associated with the sexual fancies. In middle-aged women the prospect of cure is small, there being great danger of the unnatural sensitiveness leading on to hallucinations and delusions. If the disorder arise about the menopause, there is some hope of the symptoms subsiding, though this is not very great. Here, again, general medical treatment is all that can be done.

In old age one meets with cases in which there is a re-development of desire, and with it there may be a re-development of the disorders of the desire. We have met with old men who have been depressed and suicidal because after a short period of renewed sexual power, as well as desire, this passed away. This is not very uncommon in cases where old men have married young wives. In some, prostatic trouble may be found, and should be treated.

It is well to recall the fact that there may be sexual hypochondriasis as a symptom of locomotor ataxy, in which disease sexual desire for a time is often increased, to be followed by complete impotence.

GEO. H. SAVAGE.

HYPOCHONDRIASM, HYPOCHONDRICISMUS, HYPOCHONDRISM (*ὑπό; χόνδρος*). Terms used in place of hypochondriasis.

HYPOCHONDROPHTHISIS (*ὑπό; χόνδρος; φθίσις*, a wasting). A wasting away of the body with hypochondriacal symptoms. (Fr. *hypochondrophthisie*.)

HYPOGEUSIA (*ὑπό*, dimin.; *γεῦσις*, the sense of taste). Diminution or defect of the sense of taste from whatever cause.

HYPOLEPSIOMANIA (*ὑπό*, dimin.; *λήψις*, a taking hold of; *μανία*, madness); **HYPOLEPSIS** (*ὑπό; λήψις*). Terms employed by Andral to denote the various forms of monomania.

HYPOLOGIA (*ὑπό*, dimin.; *λόγος*, speech). A term for deficiency or poverty of the thoughts which lead to speech, as observed in melancholiacs.

HYPOMANIA (*ὑπό*, dimin.; *μανία*, madness). A name given to subacute attacks of mania, which are marked by an initial melancholia, retardation of the flow of ideas, and consequently no incoherence, restlessness, increased self-consciousness with delusions of a grandiose character and perversion of sexual instincts.

HYPOMNESIS (*ὑπόμνησις*, a reminding, from *ἵπομιμνήσκω*, I call to memory). A synonym of Memory, Recollection, or the recalling of some past circumstance. (Fr. *hypomnesie*; Ger. *Erinnerung, Rückerinnerung, Bewusstsein*.)

HYPOMORIA (*ὑπόμωρος*, inclined to stupidity; from, *ὑπό; μωρία*, folly). A slight degree of mental imbecility; also used to denote slight delirium.

HYPOPHRASIA (*ὑπό*, dimin.; *φράσις*, speech). A term used to denote deficiency or paucity of words, a condition observed in melancholiacs.

HYPOPRAXIA (*ὑπό*, dimin.; *πράξις*, a doing). Listlessness, defect of action, a common symptom in melancholiacs.

HYSOPHOBIA (*ὑψος*, height; *φόβος*, fear). The morbid fear of being on an elevation or any lofty place. A condition similar to agoraphobia, amaxophobia, claustrophobia (*q.v.*).

HYSTERIA.*—There is a fairly general consensus as to the kind of affections which are to be labelled as *hysteria*. This term, though etymologically indefensible, must be retained from long prescription. The symptoms are so numerous and diverse that a useful definition of hysteria must necessarily have reference to causation, and can be arrived at only by a careful study of these symptoms, the subjects they affect, and the conditions in which they arise. It will then be seen (1) that hysterical disorder claims the whole of the nervous system as its domain, both in its physical aspect and psychical relationships; (2) that, search as we may, no demonstrable disease can be found to explain it, however often its phenomena may be specially occasioned by peripheral disturbance arising from the body itself or from the outside world; (3) that varying combinations of abnormal nervous instability and relatively excessive stress of internal or external conditions must take place for its display; and (4) that some degree of mental disorder, mainly in the sphere of feeling, is a nexus between all its phenomena, predominantly physical in expression though they may be in many

* The Editor has thought it advisable to insert, at the risk of some repetition, two articles on HYS-TERIA, one from the English point of view by Dr. Donkin, the other from the French standpoint, which, in the minds of English physicians, is associated with hystero-epilepsy.

instances. The clinical study of hysteria, on the one hand, excludes definitions implying an origin from any system or organ other than the higher cerebral regions, and on the other indicates at every stage aberrations from what we know as nervous and psychological order. It is, therefore, only from the study of the functional order of the nervous system and the mind, that we can attain to any explanation of their functional disorder, and the difficulty of formulating hysteria is neither less nor more than that which is involved in the acceptance of any given system of neurology and psychology. When these sciences were chapters in theology, it was consistent to regard hysteria as demoniacal possession; and now, if they be treated in the light of the doctrines of evolution, it is in the terms of this philosophy that the disorder must be explained.

In order to preclude the merely scholastic objection of some to the term "functional," on the ground of its supposed exclusion of the structural, it is well to state here clearly that no such exclusion is really implied, it being well understood that with every change in nervous function, whether normal or abnormal, there is a corresponding molecular change in nervous structure. But it seems to be equally clear that as long as the term "force" continues to be used as well as "matter," and while we are unable to express orderly nervous action in other terms than those of force, the accepted word "functional" is as good as any other to apply to its disorderly manifestations. There will ever remain an intelligible difference between the physical changes which accompany both healthy and hysterical modifications of movement, and those which underlie the spasm or paralysis of demonstrable disease, such as cerebral hæmorrhage.

For the normal working of the human organism there must be a given amount of systemic nervous control or stability, and a certain sum of environmental conditions. Inherent defect of the one, or default or excess of the other, or both, leads to abnormal reactions, some of which are by consent termed "hysterical." From this point of view it may be said that all persons are potentially hysterical, and it may be objected that this explanation is too wide to be of use; but the limits of the normal are great in respect of both of these factors, and there is a sufficiently well-marked set of nervous and mental peculiarities, and a sufficient similarity of conditions in which they are displayed to justify the practical classification of hys-

teria as a distinct malady. A wide definition of this disorder is necessitated by the scope of its phenomena, some of which are closely allied to insanity, and others with difficulty distinguishable from demonstrable local disease. Although in many instances the bodily symptoms are predominant, and may simulate, apart even from voluntary imposture which not seldom co-exists with genuine symptoms, almost any organic nervous disorder, and many other affections as well, yet a certain degree of mental aberration obtains in all hysterics. To recognise the element of psychical disorder is of the first importance, for it involves the whole question of accurate diagnosis and appropriate treatment, and there is much less risk of error in roughly classing hysteria as a species of insanity than in taking one of its physical expressions, the hysterical fit, for instance, or sexual disorder, as its central fact, and grouping the rest of its phenomena round these as secondary.

A consideration of the main facts called hysterical will indicate the general **definition** of hysteria in its physical basis as a disorder or defective development of the functionally higher layers of the cerebral cortex, with manifestations of both mental and bodily phenomena in varying proportion, and occurring mostly in the female sex. It will thus be seen that hysteria is but an important species of neurasthenia, which may be regarded as an initial defect of nervous organisation, giving rise, according to circumstances, to more or less specialised neurotic and mental disorders, the subjects of the less specialised forms being styled simply neurasthenics.

The subjects of hysteria are, in a very large proportion, of the female sex, the symptoms most often appearing at or soon after puberty. Children, however, even when quite young, may suffer from it, the sexual distribution being much less unequal in the earlier years; and marked cases occur not infrequently in men. The typical subject of hysteria, however, is the young woman; in her organism and her social conditions the potential factors of hysteria are present in a notable degree. Apart from whatever fundamental difference of nerve-stability there may be between the sexes, and this is probably very great, the girl usually meets with far more obstacles to uniform development and consequent nervous control than the youth. The stress of puberty, marked in both sexes by a great increase in the complexity and activity of the organism, is more sudden and intense in the female; the sexual organs which undergo these

great changes are of relatively greater importance in her physical economy, and consequently involve a larger area of central innervation than in the male. The nervous balance is thus in especially unstable equilibrium. With this greater internal stress on the nervous organism there are in the surroundings and general training of most girls many hindrances to the retention or restoration of a due stability, and but few channels of outlet for her new activities. It is not only in the educational repression and ignorance as regards sexual matters of which the girl is the subject that this difference is manifest, but all kinds of other barriers to the free play of her powers are set up by ordinary social and ethical customs. "Thou shalt not" meets a girl at almost every turn. The exceptions to this rule are found in those instances where girls and women of all conditions, owing to the influence of good education or necessity, or both, have regular work and definite pursuits. The comparative freedom and the various and necessary occupations of the youth offer many safety valves for his comparatively minor nervous tension. In proportion as the energies are in some way satisfied, the nervous control is retained. Among the activities thus artificially repressed in girls, it must be recognised that the sexual play an important part, and, indeed, the frequent evidence given of dammed-up sexual emotions by both the special act of masturbation and numerous extraordinary vagaries of conduct, have led many to regard unsatisfied sexual desire as one of the leading causes of hysteria. It may be briefly said in this context that this is but one cause, or rather, occasion, for hysterical display. The most severe form of this affection may be seen in both men, women, and children, where there is no disorder, inability, or repression as regards the sexual organs or function; but enforced abstinence from the gratification of any of the inherent and primitive desires, in the absence of other outlets for the activities of the natural organism, must have untoward results, and in certain cases, when this special desire is in excess, may, even when other conditions are favourable, be in itself an adequate exciting cause of morbid display. There are clearly other stresses which render women especially liable to hysteria. The periodical disturbance of menstruation, the times of pregnancy and parturition, and the numerous and multiform anxieties of home life, have their influence in contributing to the number of sufferers. There are, perhaps, as many or more instances of neurotic women commencing

hysterics after marriage, as there are of hysterical girls showing greater nervous stability with the same change of condition.

Mental Characteristics of Hysteria.

—The cardinal fact in the psychopathy of hysteria is an exaggerated self-consciousness dependent on undue prominence of feelings uncontrolled by intellect—that is to say, on the physical side, an undue preponderance of general widely diffused, undirected nervous discharges, and an undue lack of determination of such discharges into definite channels. Thus the hysteric is pre-eminently an individualist, an unsocial unit, and fails in adaptation to organic surroundings. This predominant disorder in the sphere of feeling is generally accompanied by more or less evidence of intellectual disturbance, as shown in the multiform vagaries of conduct which are so prominent among hysterical symptoms; but in the majority of cases intellectual disorder is not conspicuous, and mental abnormality is mainly evidenced by exaggerated impressionability or tumultuous emotion on apparently slight provocation. It is difficult or impossible in some few cases to draw a hard-and-fast line between insanity and hysteria, and we may find all grades of temporarily disordered thought; but as a rule the hysteric recognises the impropriety or outrageousness of those actions which spring from this cause, and shows that, if she has lost control or "will power," she at least admits the want of it. Hysterics are deficient in energy, or in appropriate direction of energy; some become inert, others actively mischievous. Her abnormal action or inaction is the result of the passion for sympathy or notoriety, and instances of this range from mere giving way to or exaggeration of suffering, to wilful imposture, simulation of all kinds of diseases, and even to actual crimes. The steps from the lowest to the highest grade of hysteria are imperceptible, and the intermixture of imposture is often hard to recognise or duly appreciate. This difficulty has given rise to the common error of regarding hysterical disorder as deliberate sham, and thus limiting its sphere to the extent of rendering the subject unintelligible. The most obvious cases of hysteria in both men and women where certain disorders of sensation and motion are demonstrably outside voluntary control, may also be marked by conduct which is the outcome of the subtlest craft; and the most typical of the physical affections of hysteria may be seen as well in those who are powerless to help themselves and rightly excite our pity, as in

those whose actions occasion our contempt and aversion. It has been observed by Wilks and others, in illustration of this, that there is a great tendency to marked "moral" perversion in the subjects of hysterical hemi-anæsthesia, where the whole of the mental and physical functions accompanying the action of one side of the brain may be disordered or in complete abeyance.* Thus we have at one pole of hysteria the prominently mental cases which, from the absence of any physical symptom that is demonstrably uncontrollable, trench closely on insanity, and at the other the prominently physical cases which are so closely mimetic of recognised organic disease. Both extremes and all intermediate forms may be mixed with imposture in any degree. The mental condition of many hysterics is only paroxysmally abnormal, in times of excitement or other stress; with others over-emotional condition or eccentric conduct is the rule. Exceeding selfishness, delight in annoying others, groundless suspicion and unprovoked quarrelsomeness are of very common occurrence; and the instances of self-mutilation and wondrously filthy habits are numerous. Salient examples of the strangest conduct are often seen in young girls about the time when the sexual proclivities are recently developed; they indulge in almost any form of mischief, regardless of consequences, and may steal or commit murder. Wilks has laid especial stress on this, quoting striking cases in point, and shows how many mysterious occurrences in households are explicable by the presence of a young girl. Such individuals may become confirmed hysterics or sometimes asylum lunatics. Maniacal attacks with definite delusions occur sometimes in hysterical patients, and these cases are apt to pass into true insanity. It is well known that many insane patients are euphemistically called hysterics. With respect to the essential difference between hysteria and insanity it has been said by Mercier that insanity results from disorder in the functionally highest layers of the cerebral centres whose activities are accompanied by intellectual processes, such disorder rendering control impossible; while the psychopathy of hysteria mainly pertains

* A strikingly illustrative case of this kind is quoted by Wilks of a Frenchman who was in Guy's Hospital with hysterical hemiplegia and hemi-anæsthesia coupled with evidences of moral obliquity. The following year his symptoms returned and disappeared at the shrine of Our Lady at Lourdes. For a third seizure he was admitted into a hospital, where he denied his identity, and stated that the miracle at Lourdes had been worked on his brother.

to disorder in the level immediately below the highest, and therefore potentially and often actually controllable under the influence of appropriate stimuli.

Sensory disorders, both in the direction of anæsthesia and its opposite, and other abnormalities, are prominent in hysteria and an indication of disturbance at a lower functional level in the cerebral cortex. These are sometimes, from the very nature of sensibility, difficult to test and differentiate from the results of imposture which are often inextricably mixed with the genuine phenomena. There may be general or partial hyperæsthesia, and anæsthesia, or more especially analgesia of similarly varied distribution. These symptoms are often markedly local, and shifting in position, and are not confined to special nerve areas; thus the skin of the hand and part of the fore-arm may be affected, or a small portion of the facial surface. The left side of the body is specially liable to this condition, and there may be complete hemi-anæsthesia, most often of the left side, including the mucous membranes, muscles, and special senses as well as the skin. The visual deficiency may be of many grades up to complete amaurosis, and there is a remarkable variety known as achromatopsia, or failure to recognise colours, which disappear and reappear in inverse order. This anæsthesia is essentially transitory in character, though it may last for a considerable time; and its transference to the other side of the body in some cases follows on application to the affected parts of various substances, *e.g.*, of metals, magnets, wooden discs, &c., or on hypnotic methods, or sometimes on mere suggestion; all of which agents seem to have the common power of exciting some cerebral nerve action or inhibition accompanied by a change in consciousness, or in vulgar language, of acting through the mind. One French school of neurologists who have worked so extensively and minutely in this field, have of late espoused the long-prevalent English view of the *rationale* of these phenomena, some of its most modern exponents ably illustrating many hysterical phenomena by the facts of hypnotism, and indeed claiming "*suggestibilité*" as the essence of the hysterical neurosis.

Among the common hysterical hyperæsthesiæ are: tenderness on light pressure over the surface of the abdomen, not increased by deeper pressure; localised tenderness in the epigastric region, which, when associated with vomiting and anæmia, and sometimes hæmatemesis, requires diagnostic acumen in its separation from gastric ulcer, &c.; and neuralgiform pains

in the mammary, spinal, pelvic, and other regions, of which "clavus," or a severe localised pain in the head, is a classical example. Tenderness in the ovarian region especially is prominent, pressure on which part will sometimes both occasion and control convulsive seizures; and pain and tenderness over the vertebral, and particularly the dorsal, spines have given rise to the term "spinal irritation," which, though quite unconnected with spinal mischief, occurs often both in men and women after general nervous shock arising, among many other causes, from railway and other accidents. Painful joints without obvious cause are very frequent. Disorder of the special senses by way both of increase and loss of function often occurs, and in connection with this we may notice the odd craving for indigestible and even disgusting substances shown by some hysterics, who will devour slate pencils, coal, chalk, and many nauseous drugs with apparent relish.

Motor disturbances in hysteria are legion, many of them pointing again to a lower level of nervous disorder than obtains in the more especially mental forms of the malady, though some are connected with the latter class in a marked degree. Some of the commonest of these are visceral, as exemplified by the lump in the throat or "globus," which is considered by many to be due to œsophageal spasm. Dysphagia is common, but the greater spasm to which this is probably due does not hinder the passage of a bougie which often effects an even permanent cure of this symptom. Vomiting, a very frequent hysterical symptom, may be due to spasm of the stomach. It may be urgent and repeated, and cause considerable wasting in some instances, though by no means generally, food being often taken and retained in secret; and the symptom is apt to suddenly disappear under many of the various environmental stimuli which are appropriate to the treatment of hysterical disorders. Intestinal spasms, evidenced by visible coils of intestine, borborygmi, flatulence, &c., and spasm of the pelvic organs are common occurrences. In the respiratory tract there may be glottic (adductor) and bronchial spasm, and typical attacks of asthma, in close connection with emotional disturbance are seen, such attacks often beginning with mental worry and suddenly ceasing with its removal. The commonest and most fundamental example of hysterical spasm are laughter and weeping with comparatively inadequate cause, symptoms which obviously connect hysteria by invisible links with the normal neurosis underlying all human emotion.

Lastly, we have numerous examples of spasm of limbs and the voluntary muscles generally, transient or of long duration, often simulating the organic forms of spastic paraplegia and other diseases in various degrees. The most chronic instances of this affection are known as contractures; sudden recovery may occur in any case, but some become permanent with visible nerve-changes. The most familiar example of spasm is the hysterical fit, which constitutes the essence of what is vulgarly known as hysteria, and attacks a very large number of hysterics, but need not be dwelt upon at any length for the present purpose. It has a superficial, and sometimes a very close, relationship both in appearance and otherwise to epilepsy, but, as a rule, the distinction is obvious. The hysterical fit is generally preceded by various kinds of emotional display, such as laughter or crying, by globus, and disorders of general or special sensibility; and its spasms usually lack the regular process and distribution which mark true epilepsy. It takes place but seldom at night, perhaps never when the patient is alone, and is generally without the signs of complete unconsciousness. There is a purposive appearance of many of the wild and disorderly movements which mark the fit, even at its height, when ordinary sensibility is certainly largely in abeyance, and the facial expression is not lost, as in epilepsy, but is one of varied emphasis, and the eyes are generally closed. The paroxysm may last much longer than any single epileptic one, and ends not in coma, but, as it began, in emotional display. Thus the typical hysterical is distinguished from the typical epileptic fit by the absence of any involvement of the lowest and middle layers; hence a succession of unlike movements and no true clonic spasm. The variety of hysterical disorder known as hystero-epilepsy, showing with multiform epiphenomena more regulated paroxysmal convulsions, in some respects closely simulating epilepsy, and sometimes, like the ordinary hysterical fit, *alternating with it*, need be but mentioned here, as it is dealt with elsewhere in this work. (See Hysteria and Hystero-Epilepsy.)

Paralysis or any degree of lessened motor power may take place in all grades of hysteria, affecting any part of the nervous system, visceral or voluntary, and arising, like other symptoms, from both general and local exciting causes. It may affect small groups of muscles, as in laryngeal aphonia, or even one muscle prominently, as in ptosis, and may be monoplegic or paraplegic or approximately

hemiplegic or general in distribution. In so-called hysterical hemiplegia the absence of true paralysis of the seventh and ninth nerves is a differentia from the ordinary hemiplegia, due to organic lesion of the internal capsule or neighbouring parts of the motor tract; as also is the more frequent presence of marked sensory abnormalities, generally characteristic of hysteria. Rigidity, common with these paralyzes, never endures continuously from the outset in the organic form. Aphonia may be the only prominent motor symptom in some cases, without marked mental peculiarities; and is common in young girls and boys, as well as adults. It is due to temporary adductor paralysis, as evidenced laryngoscopically, and can almost always be made to disappear, often permanently, by even one application of the faradic current. It is only necessary that the application be painful; but for the sake of exciting the due mental impression and voluntary effort to speak it is far better to apply the poles to the larynx itself externally; for success largely depends on the effect of the first experiment. A perfect result, however, has frequently been obtained by faradisation or otherwise painful stimulation of indifferent parts. Intra-laryngeal faradisation is probably never necessary, and it is certain that the sufferer from various grades of hysterical aphonia may often be quickly cured on the cessation of protracted and misdirected medical "care" of their hypothetically diseased larynges. Like many other hysterical disorders, aphonia is often started by local irritation, as by the catarrh which co-exists with ordinary tracheitis (cold in the chest), and persists long after inspection shows that the cords are perfectly sound. The whisper in hysterical aphonia, or the occasionally elicited voice, is generally not hoarse; but catarrhal hoarseness may persist in cases where aphonia is shown to be functional by its sudden cure. In hysterical paralysis of limbs, the legs, one or both, are most apt to suffer, often with adductor and extensor rigidity of thighs and feet; next the arms, with a tendency to rigid flexion; moreover, paraplegias frequently occur suddenly in hysteria, and hemiplegias gradually, the converse being the case with the best known organic forms; and they are all liable to sudden recovery.* It must be remembered that both these and other hysterical symptoms are often grafted on to organic disease, both nervous

and otherwise. This hysterical reinforcement of organic weakness is well shown by a case, wherein a well-marked peripheral neuritis with the typical electrical reactions, complete inability to stand persisted long after there was a sufficient recovery for the free movement of the legs up and down in bed, and disappeared rapidly on the stimulation of the "voluntary" nerve regions by painful faradism, when the patient soon rose up and walked, the abnormal electrical reactions still remaining in some degree. Of hysterical paralyzes it may be further said that they are marked off from organic disease by the absolute want of effort to move the limbs in any degree, as shown both in facial expression and otherwise, and by the presence of a certain amount of muscular tone which is generally to be detected by the experienced observer in raising the limb or letting it fall or placing it in uncouth positions. Want of will-power is the mental correlative to hysterical paralysis; it is the highest motor (præ-frontal) region which is at fault; and the subtle connection yet eternal distinction between the mind and the body is perhaps best illustrated by the following observation which at the same time throws a physiological light on the apparent paradox of hysterical paralysis and other symptoms. On gradually awakening, or recovering from the deep physiological paralysis of profound sleep, especially after mental or physical exhaustion, the power of grasping firmly is absent for a short while, but rapidly returns. For a time, too, exertion produces tremor. As far as our consciousness is concerned, our will-power is perfect; yet the required force is absent. Like the hysteric, we may wish strongly to succeed in the action, but we cannot effectively say, "I will." Further incidental analogies between the "dissolution" phenomena of ordinary sleep and those of hysteria are found (1) in the convulsive starts which are common when sleep comes rapidly on; such a condition showing sudden arrest of action of controlling nerve centres, and a consequent over-activity of subordinate parts; and (2) in the disproportionate views of external circumstances which so often result from the imperfect working of the intellect under the influence of the half-waking condition of the brain.

Hysterical motor disorder is characterised by loss of energy, and is caused by a protracted inactivity of the higher motor regions. The ultimate test of hysterical motor disorder is thus to be found in its ever concomitant manifestations, however slight, of mental disturbance.

* The forms of both paralytic and spasmodic hysterical disorders of motion known as trance and catalepsy need only be mentioned, being elsewhere discussed.

Certain phenomena of disordered **circulation** and **nutrition** must be briefly noticed. Palpitation is very common, syncope not very rare, and diminished frequency of heart action is observed, especially in the conditions of trance and catalepsy to which some hysterics are subject. Sensations of heat and cold, especially in the extremities, are often complained of. Paradoxically high temperatures of short duration, but often recurrent, are well known, pointing to disturbance in the nervous processes which hold the balance between the production and the escape of heat. There is every necessity here to guard against imposture, especially in hospital cases; but the existence of this phenomenon is beyond question. *Hæmorrhages*, both from mucous membrane and skin, certainly occur, but many of these are doubtlessly feigned; and both local and general *ischæmia* has been observed in certain hysterical conditions, especially in connection with anæsthesia. The *secretions*, as for instance those of the urine and sweat, are sometimes abnormal both in quantity and quality; the urine may be very pale and plenteous, or very scanty; and the sweat may be coloured (chromidrosis). *Excessive wasting*, with complete anorexia of long duration, and sometimes fatal, is one very important, though not over-common, expression of hysteria. These cases, known as *anorexia nervosa*, or *apepsia hysterica*, most often arise in connection with grief or disappointment, though the inability to take food may continue after the mental trouble has ceased. Their cure is the best instance of the success of what is known as the Weir-Mitchell treatment. Recovery, however, is often rapid and complete when the patients are removed from their homes, and encouraged by fresh interests and the best physical aids of light and air and other tonics.

Hysteria in Children.—The records of a hospital for children might furnish material for a sensational chapter on nervous disorder. Almost all forms of hysterical symptoms, both psychical and physical, are met with even in very early years, and below the age of twelve are almost as common in boys as girls. The characteristic disorders of feeling are prominent, and anæsthesia of random distribution, hemi-anæsthesia, spasms and paralysis may occur. Rhythmical tremors and other curious repeated movements are common. The condition of *flexibilitas cerea*, as seen in catalepsy, where the limbs may remain in awkward positions for many minutes, has been seen in a girl of three years old, who was

markedly emotional and precocious, and typical hysterical fits are not rare in children several years under puberty. In these fits, as with adults, the patients do not hurt themselves, though they may fling themselves out of bed, and the attacks may be stopped by painful applications such as a strong faradic current. Attacks of screaming, crowing in-spiration, barking, vomiting, &c., are well-known in boys and girls. The phenomena not seldom closely resemble those shown in hypnotised subjects, and there is often an element of malingering. In some there are attacks of fury and destructiveness, biting, &c., and in others well-marked epileptic attacks may alternate with the most *bizarre* hysterical symptoms. Marked hereditary neuropathy of many kinds is prominent in the families of hysterical children, and choreics especially are very liable to the affection. It is almost always better for severe cases of hysteria in young girls to be isolated, and the prescribed treatment carried out, after due observation and diagnosis, by disciplined nurses, the medical attendant being but rarely seen.

Hysteria in Men.—All varieties of hysterical display occur in men, as has long been recognised by general hospital physicians in England. The public, including the legal profession, is in much darkness on this point. Recently, the Paris neurologists, and notably M. Guinon, have insisted anew and with characteristic clearness on the frequent existence of hysteria in men, which has been certainly passed over too lightly by many English writers. English experience, however, in general hospitals, does not corroborate the opinion expressed by some French authorities that hysteria among hospital patients is more frequent in males than females. The explanation of these discrepant observations is probably to be found in racial and social differences.

The sensory symptoms vary from the slightest up to a perfect hemi-anæsthesia, and there may be typical "fits," with the usual characteristics of emotional exaltation and undue impressionability. Hysteria in men is frequently a sequela of sudden nervous shocks, such as accidents, explosions, and is often connected with alcoholism. Marked instances of hysteria, such as fits simulating epilepsy, and attacks of so-called spinal irritation, paraplegia, &c., have been frequently observed and recorded as occurring after railway accidents. The disorder of feeling, which is the mark of hysteria, is often very prominent in cases of this kind, and, showing itself in so-called moral obliquity, may

complicate the case with a greater or less element of malingering, especially in instances where compensation is sought by litigation. The difficulty of diagnosis is much increased by the frequent occurrence of purely fraudulent imitation of such cases. The unquestionable incidence of hysteria on men is not yet fully recognised, and by sharing or taking advantage of the prevailing ignorance on the subject, an advocate may successfully silence a scientific witness and throw dust into the eyes of judge and jury.

Hysteria in men is often confounded with *hypochondriasis* (*q.v.*) which, on account of its symptoms simulating many organic diseases, is closely related. Hypochondriasis is, however, marked off from hysteria by its different psychopathy, and is altogether a neurosis of less ample range. The prevailing mental state is that of depression, and the morbid sensations are not, as a rule, excited by any obvious external cause, as is most often the case in hysteria. The hypochondriac believes himself to be suffering from some organic disease, most often of the abdomen, and especially of the generative organs, though not unfrequently the brain, heart, lungs, liver, and kidneys are accused. He is generally desirous of recovery, unlike many hysterics, but is even more difficult to convince that he has no organic disease. This neurosis, indeed, involves the sphere of the intellect more extensively than that of the feelings, and has near clinical relationships to insanity, especially to melancholia. Its symptoms, however, are sufficiently definite for its claim to a place as a clinically distinct neurosis, one of the most characteristic of them being a limitless belief in medicine and its professors of all shades. It must be remembered here that, like hysteria, hypochondriasis may be associated with demonstrable disease.

It has already been said that *neurasthenia* must be regarded as expressing a more general nervous instability than the special neuroses, and includes all those cases of functional nervous disorder which, though really of the same pathology, are symptomatically different from the common forms known as hysteria, hypochondriasis, &c. It is, however, used in a more specialised sense, especially by those who insist on confounding hysteria with malingering, and is often applied to cases where hysteria might seem a term of reproach. In its most limited and earliest sense (*neurasthenia spinalis*) it denoted cases with general neurotic relationships, where the chief complaint is weakness, especially in the legs, with or

without some pain in the back, and is not unfrequently connected with some of the various forms of sexual excess.

Exciting Causes of Hysterical Disorder.—The essential element of hysteria has been seen to be a neurosis marked by certain mental and physical symptoms. Heredity plays an all important part in its production. The limits of resistance to any given nervous stress vary widely in different individuals, and the disturbance which makes one person hysterical is not felt by another. The excessively frequent circumstance of hysterical women having obviously hysterical offspring is partly to be put down to example, and is an instance of untoward conditions as well as of heredity, but there is ample evidence of the close connection of other recognised neuroses in the families of hysterical subjects. Insanity, chorea, epilepsy, migraine and various forms of neurasthenia figure very largely in this context, as also do some of the recognised organic instances of nerve disease. Such hereditary relationships are especially prominent in those cases of hysterical disorder which are at once least amenable to treatment and least referable to demonstrable stress.

On the vulnerable nervous material of the hysterical subject many exciting agents work to produce disorder. Prominent among these are great and sudden emotions, such as fear in all its forms—a notable element in the hysteria of childhood; disappointment; forcibly repressed desires, especially sexual; enforced mental overwork; nervous shock, as, *e.g.*, the result of railway accidents, earthquakes, &c.; traumatism of all kinds, including surgical operations; general exhausting conditions, such as hæmorrhages, anæmia, the menstrual periods, pregnancy, parturition, poisoning by alcohol, chloroform, mercury, &c.; diseases such as enteric and other fevers, pneumonia, malaria, syphilis; organic nervous disease, as tumour of the brain, disseminated sclerosis, tabes dorsalis, and especially paralysis agitans; and local affections of the generative and other organs; though it is to be observed here that marked disease of the uterus, such as cancer, is not a frequent exciting agent in hysterical display. There is no special form of hysteria, as has been so ably insisted on by the French school, attaching to these special excitants, but almost any kind of hysterical display may result from the operation of any of the agents mentioned.

The influence of hypnotism as an exciting agent deserves especial mention; for not only is there a marked similarity between many of the spontaneous phe-

nomena of hysteria and the induced or suggested ones of hypnotism, but also it is among hysterical sufferers that many instances of natural somnambulism and most of the subjects of induced hypnotism are found. Notwithstanding the recent teaching of the school of Nancy that all human beings are potentially hypnotisable, which dictum is not accepted at the Salpêtrière, it is certain from general experience that human beings are hypnotisable in direct proportion to their nervous instability.

Diagnosis.—It is clear that this must depend on the fullest clinical knowledge and study of each case, and a remembrance that hysteria may concur with organic disease. The presence of the mental characteristic of the disorder with symptoms of doubtful nature, and the absence of evidence, or the possible exclusion, of organic disease, is often diagnostic. The motor and sensory disturbances of hysteria have generally a different distribution and natural history from those of known organic lesions, as has been already pointed out, and some of them have no organic counterpart. But there is no royal road to the diagnosis of hysteria, which often requires all the resources of neurological knowledge and wide clinical experience.

Treatment.—The rational and successful treatment of hysteria depends on bearing in mind the nature of the predisposing neurosis and the various causes which excite its display. The sooner the hereditary neurosis is recognised, the more readily can its encouragement and development by exciting agents be prevented. Almost all treatment must be directed to counteracting those influences which disturb the impressionable organism; it is generally unnecessary and often harmful to treat a local manifestation. When local treatment is successful, as in some of the hysterical paralyses, the neurosis is comparatively less intense, the disorder at a comparatively lower level in the cerebral centres. The children of the neurotic, especially of the hysterical, and still more those who themselves show signs of hysteria, should when possible be educated away from home; their training should be carefully directed with the view of increasing self-control and discouraging self-regard, and at the same time over-restriction and unsympathetic harshness should be sedulously avoided. With increasing years regular employment should be insisted on, a sense of responsibility should be if possible awakened, and all attempts made to excite intellectual interest and encourage regard

for others. Indolence is the foster-nurse of the hysterical temperament, and gives every opportunity for any accidental circumstance to beget the worst results of self-consciousness. In most cases of hysteria, of whatever nature, when the physician's aid is required, it is best, and sometimes imperative, to remove the patient from home influence and the conditions in which the disorder has developed, and to place her among strangers. This alone will cure many. Judicious hospital treatment, consisting mainly of observant neglect, proves this in what to some seems a surprising degree. When once the diagnosis of hysteria has been deliberately made, and the patient separated as far as possible from ascertainable exciting conditions, the doctor's visits should be few or should cease, and no one should by word or manner show any doubt as to the mode or success of the treatment proposed. In the class of cases known as hysterical anorexia and allied conditions the method of treatment known by the name of Weir Mitchell numbers its most important successes. It may be fully conceded that the rubbing (*massage*), which in the popular mind is the main point, and the concomitant *forced feeding*, contribute in many cases to a more rapid success than when these means are dispensed with; but it is equally true that even with most advanced cases the third element of *isolation* alone will work wonders, a consoling fact to those who are unable to afford the great expense, both for doctors and nurses, which usually attaches to the complete treatment now in vogue. It must also be borne in mind that many cases which improve rapidly under the triple method relapse as quickly when the ceremonial ceases; and it is evidenced all over the field of hysteria that the simpler the method of cure, and the more it evokes self-reliance, the more enduring are its results. The patient's belief in the means used, however, is in many cases a great help towards success, and hysterical patients of many kinds may lose the symptoms, at least for a while, under almost any treatment which happens to be in fashion or to "impress their minds." Thus, a well-nourished person with good appetite and digestion, who is obviously not in physiological need of the artificial metabolism induced by the Weir Mitchell treatment, may be cured, of an "irritable spine" in a few days by "massage" conducted with due gravity; and a subject of true hysterical anorexia of long standing, or hysterical vomiting, may make a rapid recovery after a few applications of faradism, made, with an

air of confidence, to the epigastrium. The habit of many hysterical symptoms, such as anæsthesia, pain, paralysis, or spasm, of shifting their position, either spontaneously or from external suggestion or appliances, as pointedly shown by the transference phenomena in hemi-anæsthesia, indicates many modes of treatment to the reflecting physician, and at the same time reminds him of the necessarily evanescent nature of many of his successes. There is no doubt, however, that firmness and other qualities of mind and manner in those who are conducting the cases play an important part in the number and permanence of the cures.

When any physical disorder, general or local, co-exists with, or has excited, hysteria, it is generally imperative to treat it when possible, or to ignore it. Anæmia and other general conditions should be combated in the usual way, and here, as in many neurotic cases, arsenic is found to be of great value. When there is much excitability or sleeplessness, the bromides (preferably that of ammonium), in full doses, may be given with advantage for a limited period to tide over a time of stress, but their prolonged use is always harmful, not only from their directly depressing effect, but because by the regular administration of any drug self-reliance is destroyed, and the patients are induced to believe that there is more the matter with them than they have been told. Many hysterical patients who are devoid of any tendency to imposture, and anxiously desire to get well, are rapidly cured on the omission of all medical treatment by a doctor who confidently assures them that they have never had the disorder for which they have been long attended. Instances of this in patients who have been treated gynæcologically are very numerous. In many common disorders, such as globus, flatulence, or "spasm," "sinkings," pain between the shoulders, &c., and the many feelings referred to the head or the heart, when unaccompanied by the graver forms of hysteria, the old and somewhat neglected remedies of valerian, assafoetida, &c., are often apparently of great value, and not disliked. Narcotics of all kinds, including alcohol, should be generally tabooed. In the hysterical or hysterico-epileptic paroxysm observant neglect is usually the best treatment in the long run; but if frequent or prolonged, the attack may be cut short by forcibly arresting the breathing for a while, or any sudden shock, or by pressure on the ovary which, however, is only sometimes successful, and as a rule not prophylactic. Aphonia and dysphagia may be removed, and sometimes perma-

nently, by faradism and the passage of a bougie respectively, and many other local disorders may be cured, at least for a time, by various applications, especially of a painful or inconvenient kind. It is always well, however, to dispense with local treatment in these cases, and depend on so-called moral methods or modification of the patient's surroundings. The beginnings of hysterical local disorders, such as paralysis, spasm, &c., should, when recognised, be always sedulously neglected, all efforts being made to distract and employ the subject of them. It is as important to avoid the imputation of sham where that element is not likely to exist as it is to show one's recognition of it when revealed by sufficient evidence. In all cases the rules of treatment laid down should be definite and strictly enforced. The best results will be obtained by exciting the will, which is most often in abeyance, by presenting the patients with sufficient objects for effort, and by acting on the faculties of imagination and belief. It is by these methods that modern miracle workers and priests and ministers of all colours succeed in curing many disorders when physicians ignorant of psychology are left resourceless.

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[References.—The literature of this subject is excessively plentiful. Among the most important for facts or explanation are the following works:—Briquet, *Traité de l'Hystérie*. Charcot, *Leçons sur les maladies du système nerveux*, &c. &c. Guinon, *Les agents provocateurs de l'Hystérie*. Landouzy, *Traité complet de l'Hystérie*. Mercier, *Sanity and Insanity; The Nervous System and the Mind*. Page, *Injuries of the Spine and Nervous Shock*. Wilks, *Lectures on Diseases of the Nervous System*. *Les Hystériques*, par le Dr. Legrand du Saulle.]

HYSTERIA mainly HYSTERO-EPILEPSY,*—The etymology of hysteria (*ὑστέρα*, uterus) must not be passed by in silence; for it has done too much harm to its proper conception. The comprehension of hysteria as synonymous with *furor uterinus* is the only one known in all classes of society; even among physicians, many have not yet been able to discard the idea that the uterus, or at least the genital apparatus of the female, is more or less the cause of this disease. This, however, does not seem a sufficient reason for altering the name of hysteria, and for adopting one of the terms quite

* The Editor's intention in asking M. Charcot to contribute an article on HYSTERO-EPILEPSY was to present English readers with a description of an affection which M. Charcot has made his own in an especial manner. The whole range of hysteria has, however, been covered, and the readers of the *DICTIONARY* will have the advantage of seeing the subject treated by a Paris as well as a London physician.—Ed.

as *bizarre* and quite as little expressive, which have been proposed in its stead. We at least have energetically refused to do so, thinking that the best and easiest way will be to forget that hysteria might possibly have anything to do with the uterus.

Definition.—What, then, is hysteria? According to our notion it is less a disease in the ordinary sense of the word, than a peculiarly constituted mode of feeling and reaction. We do not know anything about its nature, nor about any lesions producing it; we know it only through its manifestations, and are therefore only able to characterise it by its symptoms, for the more hysteria is subjective, the more it is necessary to make it objective, in order to recognise it. Some of the symptoms are most conspicuous, whilst others require careful search; the latter however are much more reliable and constant than the former, and to them one of us has given the name “Stigmata of Hysteria.”

Clinically, there is a striking distinction. Hysteria presents itself in *convulsive* and *non-convulsive* forms; although the symptoms of the latter class may vary infinitely, we shall try to arrange them for the purpose of easier description in several larger groups, so comprehensive as to allow of their being studied together. With regard to the *convulsive* forms we have one especially in view, which is known as **Hystero-Epilepsy** or *Hysteria major*.

Ætiology.—Under this head are comprised two distinct matters: (a) Ætiology of hysteria proper; and (b) Ætiology of the different symptoms of hysteria. Hysteria does not commence with the first more or less boisterous symptom which the patient presents. In most cases the disease was pre-existent, but was ignored, and it only wanted an opportunity for breaking forth; this opportunity has been called by some the “cause,” but it only means that nobody had up to that time looked for hysteria in the individual in question. As later on, when speaking about paralysis, we shall have to occupy ourselves with the ætiology of the hysterical symptoms, we shall at present only insist upon general ætiology.

Whilst the mechanism which produces hysteria is almost always uniform, the occasional causes are innumerable. M. G. Guinon gives in his thesis on the exciting causes of hysteria the following:—

Moral emotions, education, imitation, hypnotism;

Nervous shock, traumatism, earthquake, thunder;

Certain general and infectious diseases either acute or chronic: typhoid fever, pneumonia, scarlatina, acute articular rheumatism, diabetes mellitus, malaria, syphilis;

Certain exhausting pathological conditions: hæmorrhage, physical and mental fatigue, onanism, sexual excess, anæmia, chlorosis;

Chronic poisoning by lead, alcohol, mercury, or carbon disulphide and certain acute intoxications;

Diseases of the genital organs and also pregnancy and parturition;

Certain nervous diseases: disseminated sclerosis, Friedreich's disease, progressive primitive myopathy, &c.

All these conditions, however, act only on a suitable soil; e.g., out of a great number of painters working under the same conditions, only a few will present symptoms of plumbism, and in the same way, if a number of persons meet with the same accident, it is extremely rare for all of them to become afterwards subject to hysterical phenomena. It is therefore doubtless not a question of receptivity (and we have already said that we do not consider hysteria a disease coming from without) but of a special morbid predisposing condition inherent in the individual. Is not this, once again, the ancient doctrine of temperaments?

The dominant idea for us in the ætiology of hysteria is, therefore (in the widest sense), that of *hereditary predisposition*; although some individuals seem to be hysterical from their birth by reason of direct heredity, the greater number of those suffering from this affection are simply born susceptible to hysteria (*hystérisables*), and on these the occasional causes act directly either through auto-suggestion or by causing derangement of general nutrition, and more particularly of the nutrition of the nervous system, by which the power of resistance and of reaction of the organism has been modified in such a manner that the hysterical symptoms were able to explode.

Direct and indirect nervous heredity are however not the only matters playing a part here; any deviation of nutrition found in the ancestors (gout, diabetes, arthritis) may be a cause of hysteria in the descendants.

The *age* at which hysteria, or at least its symptoms, may present themselves is very variable, and may be during childhood or old age as well as at puberty, or in the adult; in the latter two periods however the majority of cases are observed. We are unable to say at what period of life

hysterical symptoms may appear, and with regard to childhood, it is very rare for them to develop before the sixth or eighth year. The symptoms of the disease do not seem to vary much at different ages. As regards *sex*, the unanimous opinion, until a few years ago, was, that hysteria is essentially and exclusively peculiar to the female sex, and as we have said above, its etymological derivation, *ιστέρα* (uterus), has greatly contributed to perpetuate this view. This however is a great mistake; for hysteria is frequently found in the male, and recently Messrs. Chauffard and Souques have shown that if we compare the number of male with the female hysterical patients who enter a hospital for general medicine during the course of one year, we find that the former by far surpasses the latter. We ourselves had already shown by the statistical returns of the out-patients' department, that, in the lower classes of society, the number of hysterical men is much greater than that of hysterical women; in the higher classes, however, the proportion appears to be reversed, a fact probably due to the rareness of traumatism and intoxication, which in the poorer classes are, *par excellence*, the exciting causes of hysteria.

From an ætiological point of view a chapter treating of hysteria according to *racæ* would be most interesting, but we have not enough material for writing it. According to our personal experience, however, we may affirm that hysteria is very frequent among the Jewish race, and comparatively frequent among the Latin and Slavonic races; as to its alleged rareness among the Teutonic and Anglo-Saxon races, it seems with regard to the former a legend, which the investigations of our German brethren are about to destroy, and it is probable that in a near future the same will be the case with regard to England and America.

Symptoms.—These are very variable as such, and also in the way they are grouped. One may, however, divide them into three distinct clinical groups.

(a) There are convulsive attacks.

(b) The symptoms are either localised in one part of the body or limbs, or manifested by external signs (paralysis, contractures, chorea, cough, sneezing, &c.), which phenomena, however, bear more or less clearly an hysterical character.

(c) There may be only slightly marked symptoms, or they may be without a manifest hysterical character; but on minute examination certain non-apparent symptoms are found to exist, which, however, are in hysteria so frequent and

constant, that their presence sufficiently characterises the affection; these are symptoms which one of us has described as hysterical stigmata.

These groups of symptoms may become mixed, and most frequently we may find in the same individual convulsive attacks, paralysis, contractures, and stigmata. But we, from the first, desired to point out that these three groups may be more or less dissociated. However this may be, we shall study separately—for the convenience of description—the convulsive, paralytic, spasmodic symptoms, &c.

Attack of Convulsive Hysteria.—The commencement may be sudden, but may also consist in prodromic phenomena, which may be little manifest, and perceptible only to those around the patient. Sometimes a little mental excitement, a greater susceptibility and a little agitation may be found; sometimes also hallucinations of one of the senses. Or certain other symptoms may appear: cough, aphonia, yawning, anorexia, muscular spasms, tremor, polyuria, &c., but in the majority of cases the patients complain of palpitation, a sense of constriction of the head with hammering in the temples, a sudden sense of heat, and lastly the well-known *globus hystericus*, which sometimes originates as high up as the base of the throat, and sometimes starts from some point of the præcordial region, and rises to the above-mentioned point. Sometimes scarcely noticed, this constriction may frequently attain a considerable degree, and we then see the patients making efforts of deglutition as if to get rid of a foreign body, or we see him with his hands on his throat pressing and kneading it with his nails, in one word, trying to get rid of the globus which chokes him.

We have further to indicate the different *auræ* which may be observed: the most common and frequent one is that starting from the iliac fossæ, and therefore called the ovarian *aura*. According to the description of the patient this aura consists in an indefinable but more or less intense sensation, starting from a single point, and radiating to the præcordial region, then to the throat and then to the head; after this the attack of hysteria commences. The aura is far from being limited to the ovarian region; often it starts from other parts of the trunk (breast, præcordial or hypochondriac region, spine or lateral parts of the trunk); sometimes the aura may have as its seat the head (especially the vertex) or even (in cases of traumatic hysteria) the limbs. In rare cases only, the patient falls down

suddenly as if thunder-struck, and the convulsive attack commences without prodromata.

The convulsive attack may present very diverse modifications. Its symptoms vary in different individuals and even in the same patient, but this is to a certain extent the case in all diseases. The necessity of methodical description however demands the creation of nosographical types; the attacks of hysteria in spite of their variability allow of classification, which, it is well to understand, is not rigidly fixed. In a complete typical attack one may distinguish three periods: *First*, the *epileptoid*, characterised by initial agitation of the limbs, falling backward with loss of consciousness, suspension of respiration and swelling of the neck. Most often the lips are covered with foam free from blood, after a slight sound of expectoration; also, as in ordinary epilepsy, the hands are pronated, and the forearms and legs are stretched out violently (tonic phase); then these same parts become subject to short and violent oscillations which soon spread over the remaining part of the body and especially the face and neck; respiration, suspended before, recommences with pain, and the whistling and jerking respiratory movements are interrupted by hiccough. Gradually these symptoms subside: this is the phase of muscular relaxation; the patient lies on the back, the head most frequently inclines to one side, the face is still congested and slightly puffed; the eyes are closed, the respiration, more regular but violent, is accompanied by stertor. The duration of this period, which, as we see, well deserves the name "epileptoid," varies from one to five minutes. Each of the phases however presents, with regard to duration and intensity, numerous variations.

Secondly, the scene changes; after lying down on the bed the patient begins again to stretch out the limbs, but this time no longer in a purely tonic manner, an immobile position. On the contrary, a period of disordered movements commences, which generally begins with the phenomenon called a "segment of a circle" (*l'arc de cercle*), very analogous to that observed in some tetanic patients: the body rests on the feet and occiput only; the trunk is raised, and according to the expression of the patients forms a kind of "bridge" on the bed; most frequently this segment of the circle consists in opisthotonos, more rarely pleurosthotonos, sometimes also in emprosthotonos. The duration of this position is naturally very variable, and it often gives place to

the "salutations," in which the patient, —the trunk having fallen back flat upon the bed—passes alternately from the lying to the sitting posture, and thus bending forward seems to salute; sometimes also the patient leaning backwards raises his feet in the air, and thus executes "*sauts de carpe*" on his bed. The movements are sometimes such that the name of *clownism*, given to this condition, is not exaggerated, and one is sometimes surprised to see weak girls practising such gymnastics. The duration of this period is a little longer than that of the preceding one, and, although extremely variable, may be said to be on the average from five to ten minutes.

The *third* period presents quite a different aspect. Hitherto the symptoms observed were purely convulsive, but now the psychical element begins to play the first part in these morbid phenomena. The patient begins to give himself to expressive mimicry, indicating the sentiments or series of sentiments which move him; pleasure, pain, fear, even fright, love, hatred, &c.; not unfrequently this sentiment and mimicry are in relation to a vivid impression or an emotion formerly experienced by the patient, which often has played a part in the explosion of hysterical symptoms. In such cases we sometimes see the patient recall a whole scene in his former life (some dispute, accident, &c.). Mimicry mostly takes the first place, but some patients also scream in connection with their sentiments, and some make long speeches. The duration of this period is still more variable than that of the preceding ones. This period of "*attitudes passionelles*" marks in some patients the end of the attack; the patient comes to, and the attack is over, or another attack supervenes. During the period of the passionate attitude, even the epileptiform phenomena of the former phase may reappear, and the whole epileptoid period develop again, more or less like that described above. Lastly, in another category of cases still rarer, the period of passionate attitudes is followed by a phase of post-hystero-epileptic derangement, lasting a few hours, or even several days; this disorder moves generally in the same circle of ideas as that of the above attitudes. These are the principal features of the *grande* attack of hystero-epilepsy, also called "the attack of the *Salpêtrière*," and which since has been observed by the medical men of all countries, and always with its fundamental characters.

We have already said that the clinical picture of the *grande* attack of hystero-

epilepsy is not always so typical. Sometimes one of the phases becomes, either through intensity or through duration, so predominant as to reduce or annihilate all the others; according to the nature of the phenomena observed, these varieties of attacks have been called by M. P. Richer, syncopal, epileptoid, demoniacal, attack of clownism, of passionate attitudes, of spasms (palpitation, suffocation, &c.), of madness, of contractures, of sleep, catalepsy, &c.

If we have dwelt particularly on the *grande* attack of hystero-epilepsy because it is the one most suitable for methodical study, we must remark that practically the attack of hysteria is far from presenting always the hystero-epileptic form. In a great number of cases this attack is confined to a few contractions of the hands and arms (the hands closed and pronated, tremor, &c.), of the feet and legs, to jerking respiratory movements, to cries, complaints, tears and sighs, &c.; but however boisterous such an attack may be, as compared with the hystero-epileptic attack, it is really very slight, as has been said: "much ado about nothing"; and in opposition to hystero-epilepsy or hysteria major this attack has been called hysteria minor. We have here also to add that the two species are not clearly distinct, and that imperceptible degrees bring the two varieties very near each other; they also may be observed together in one and the same individual, or may pass one form into the other.

Putting aside the attack of hysteria, we shall now study the other symptoms of this neurotic condition, considering them isolatedly for the sake of convenient description, although a certain number of them mostly occur combined, or at least concomitantly. Mono-symptomatical hysteria may undoubtedly exist, but is seldom clinically observed. To facilitate the study of these symptoms, we shall consider the disorders they cause in the play of the different functions, or in the different organs.

Sensibility.—Derangements of sensibility are the most constant and, at the same time, most typical symptoms of hysteria, and some of them may be considered as signs decisive for the diagnosis of hysteria in doubtful cases.

Anæsthesia is frequent, and may be found in manifold modifications. This phenomenon has for a long time attracted the attention of observers, and we find its existence mentioned in the trials of witches, so numerous in the Middle Ages; the judges before passing the sentence used to examine carefully whether there was not on the

bodies of the accused some point on which the prick of a needle or burns were not felt. The most numerous variations may be observed as regards the surface (skin, mucous membrane) as well as the deeper parts (muscular sense, visceral sensibility); anæsthesia may also occur in the sense-organs. Lastly, we have to take into account the dissociation of the different modes of sensibility, which in hysteria may be found in a special manner; we might term them variations in intensity and in quality. For the latter, we reproduce the following table, arranged by M. Pitres:—

Cutaneous anæsthesia.	{	Total	(a) Complete— <i>anæsthesia properly speaking.</i>
			(b) Incomplete— <i>hypæsthesia.</i>
{	Partial		(a) Loss of painful sensations, with preservation of the tactile sensations— <i>analgesia.</i>
			(b) Loss of thermic sensations with preservation of the tactile and painful sensations— <i>thermo-anæsthesia.</i>
			(c) Loss of tactile and painful sensations with preservation of thermic sensations— <i>anæsthesia with thermo-æsthesia.</i>
			(d) Loss of electrical sensations only— <i>electro-anæsthesia.</i>
			(e) Preservation of only electrical sensations— <i>anæsthesia with electro-æsthesia.</i>

Every clinical observer ought to be well acquainted with these variations in quality and those dissociations of sensibility, because one sees cases of hysteria so exactly like syringo-myelitis, that distinguished observers have been deceived.

As to surface-localisation, cutaneous anæsthesia may be divided into *total* and *partial*, the latter being in patches, sleeve-like (*en manchon*), monoplegic or hemiplegic. Anæsthesia of the *mucous membranes* may be marked in one membrane alone, or on all together. Anæsthesia of the *pharynx* is frequently observed, and is by many observers considered one of the most important signs of hysteria.

Anæsthesia of the *special senses*, which frequently occupies one side only, may consist in absolute loss or diminution of taste, smell, and hearing; derangements of sight may be of various kinds; in a few rare cases absolute blindness of one or of both eyes may be observed; in other cases we find only more or less pronounced amblyopia, but the clinically most important derangements are those observed in the field of vision. Hemioptia, we may say, is never observed except in cases in which it is complicated with ophthalmic migraine; but on the other hand, *concentric*

narrowing of the visual field is one of the most frequent and significant symptoms. This narrowing is variable according to the individual, and also comparatively variable in both eyes. Sometimes it amounts to a few degrees only, but sometimes it is so extensive that central vision only remains. One eye also may present very marked narrowing, whilst the other does not show a trace. Campimetric examination is particularly interesting with regard to the perception of colours. Sometimes—we even might say frequently—we find complete achromatopsia, and all colours are seen as grey. Disappearance of certain colours only is very frequently met with, and in a less degree also concentric absence of certain colours. In the majority of cases the circles of the absent visual field are grouped in one and the same order, which is, starting with the colour which undergoes least change, and going to that which is best preserved—violet, green, blue, yellow, red. More rarely the following order may be observed: violet, green, red, yellow, blue. We repeat that derangements of the visual field are among the most frequent symptoms, that they are not observed in any disease with these characters, and so permanent, and that therefore they deserve to be classed among the principal signs of hysteria.

Another mark of hysteria equally relating to the visual sphere, is *monocular polyopia*, with or without *micropsy* and *megalopsy*. This symptom is as follows: When—one of the eyes of the patient being closed—we ask him to look with the other eye at an object which we hold in front of him (*e.g.*, a pencil), his perception will show him not one, but two images; this is monocular polyopia. The two images are not always in the same plane, and often one is much greater than the other. With or without polyopia, may be observed micropsy or megalopsy; the patient sees the object held before his eyes, either smaller or greater than normal; there is often one point at which the object is seen in its proper dimensions, whilst before or beyond this point it seems to increase or to decrease. Speaking of the eye, we may make a remark which applies to all other sense-organs as well; when the visual sense is affected in hysteria, the conjunctivæ are always more or less anæsthetic. In the same manner, in cases of hysterical deafness, there is always a variable degree of anæsthesia of the external auditory meatus. In one word, if a sense-organ is affected in its function by hysteria, the sensibility of the mucous membrane connected with it is equally affected.

The Muscular Sense.—This varies in its behaviour; sometimes it is preserved, whilst in other cases it becomes altered at the moment the patient falls, if we make him close his eyes; in general we may say, that it corresponds to the degree of nervous anæsthesia; the greater the latter, the more is the muscular sense altered.

If alongside with the phenomena of anæsthesia we study those of *hyperæsthesia*, we find that it is less frequent, less permanent and less extensive; its intensity, however, may be extreme. It is very difficult to localise hyperæsthesia exactly, when it occupies the deeper parts, but on the surface its study is easier. To this category belong most of the hysterogenic points (*points hystérogènes*), the seat of which may be as variable as that of the aura treated of above. Sometimes in the median line, sometimes symmetrically, bilâteral, or unilateral (quite apart from the presence of hemi-anæsthesia), they may occupy the trunk, the limbs, or head. Irritation by friction, pressure, or other mechanical or electrical appliance, determines either the phenomena of aura, or the attack itself, if the irritation is sufficiently prolonged. It sometimes happens that by continually pressing the hysterogenic part, we arrest the attack about to develop, so that these points may be *hysterogenic* and *hystérofrénateurs*. We are not able to state exactly the tissues which possess these morbid properties, but this is indisputable, that at certain of these points irritation shows its effects, even if it is only superficial, whilst at other points pressure must be much deeper, without, however, it being possible for us to localise exactly the effect produced by the irritation of such or such a tissue. The same is the case with the classical hysterogenic, and, so to say, fundamental zone—the ovary. We are unable to say for certain that it is absolutely limited to the latter organ, but we are able to say that this hysterogenic point has its seat certainly in the neighbourhood of the ovary and of the ovarian plexus, as most precisely shown by the study of the displacement of the ovarian hysterogenic point during pregnancy, when the ovary accompanying the displaced uterus rises above the pelvis proper. The same is the case with the mammary hysterogenic points, and with the painful phenomena termed “irritable or hysterical breast,” &c., the intensity of which may be such that after some relapses it leads to amputation of that organ. It is also very difficult to recognise the exact localisation of the hysterogenic points, situated in the cranial region, and also of the “hysterical

nail" which patients say they feel driven into their heads.

We cannot consider here all the different *algias* which may be observed in hysteria, because they are innumerable—gastralgia, hepatalgia, enteralgia, hysteralgia, &c. It is, however, interesting from a clinical point of view, to speak of certain painful symptoms in the joints, which often give rise to grave errors in diagnosis. It sometimes happens that this *arthralgia* is taken for arthritis, and treated as such by surgical means, which should be rigorously avoided in the treatment of hysterical affections. One of the most common and most frequent forms of arthralgia is *hysterical coxalgia*, studied by Brodie, who has shown how much it resembles organic coxalgia in its general aspect, and also the characters by which we may distinguish one from the other; these are: the pain which in both affections is felt simultaneously in hip and knee, and becomes aggravated on percussion of the knee or heel, shows in hysterical coxalgia this difference, that it is not exactly limited to the joint itself, but extends to the skin covering the joint and above Poupart's ligament, over the inferior part of the abdomen, and even over the buttock; it is therefore a superficial pain, residing, so to say, in the skin, so that pinching that part of the skin is often much more painful than deep pressure on the same part. Patients with organic coxalgia are often aroused from their sleep by commencing pains in their hips, whilst those suffering from hysterical coxalgia, although kept awake by the pain, once asleep cannot be aroused by it. The mode of commencement is much more rapid in hysterical than organic coxalgia, and lastly, when examining the patient under chloroform, we soon find that in organic coxalgia, the coxo-femoral articulation is more or less altered, whilst in hysterical coxalgia it is absolutely normal (in some cases, in which amputation was performed, one was able to prove anatomically that the joint was healthy). We see that in the majority of cases, diagnosis, although difficult, is nevertheless possible. We have to remark that, contrary to the opinion of Brodie, rise of the temperature of the joint and atrophy of the muscles of the thigh, may be found in hysterical as well as organic coxalgia.

Motor Derangements.—These are of different kinds. We shall study in this section the different forms of paralysis, the contractures and derangements of the voluntary muscles. The derangements of the muscles of organic life will be studied when treating of the corresponding organs.

It being impossible to describe in this article all forms of paralysis, we select as the type for our description the most frequently and best observed group—*hystero-traumatic paralysis*. The ætiology of hysterical paralysis, although variable (shock, fatigue, traumatism, intoxications, various emotions, &c.), presents, nevertheless, this one particular character, that in a great number of cases the influence of the physical element is tolerably apparent. The names of *psychical paralysis*, *paralysis dependent on idea* (R. Reynolds), *paralysis by imagination*, are well applied, but not so that of *imaginary paralysis*. It seems probable that hystero-traumatic paralysis is, among others, formed by the following process: A man predisposed to hysteria has received a blow on the shoulder. This slight traumatism or local shock has sufficed to produce in this nervous individual a sense of numbness extending over the whole of the limb and a slight indication of paralysis; in consequence of this sensation the idea arises in the patient's mind that he might become paralysed; in one word, through auto-suggestion, the rudimentary paralysis becomes real. In other words, the phenomenon is brought about in the cerebral cortex, the seat of all psychical operations. The idea of movement, in the course of being executed, is already movement; the idea of absence of movement, if strong, is already the realisation of motor-paralysis; all this is entirely in conformity with the laws of psychology. We know sufficiently from mental pathology that there are ideas so fixed that it becomes impossible for the patient to escape the obsession. However this be, the different forms of hysterical paralysis present themselves generally with certain common characters, of which one of the most typical is *anæsthesia*; it may be complete for the skin and the deeper parts, so that we can not only prick the suffering limb, but also pull the different joints without causing the slightest pain, without even the patient perceiving it. The muscular sense disappears in the same way, although the paralysis may not be great. If we examine the condition of cutaneous anæsthesia we find that it always forms a zone corresponding to the paralysed limb or to a segment; it is often affected throughout its whole extent, and the anæsthesia terminates in a definite manner, following circular lines drawn perpendicularly to the axis of the limb. If, *e.g.*, we have monoplegia of the whole arm, the cutaneous anæsthesia will be limited on the side of the thorax by a line cutting the clavicle at the union of the outer third

with its two inner thirds, the external third of the pectoralis, then passing round the hollow of the armpit, and going back to the clavicle along the axillary border of the scapula. If we have monoplegia of the leg, the anæsthesia follows the anterior part of the perinæum, passes over to the anterior superior iliac spine, along the iliac crest, the fold of the thigh, the *raphé* of the perinæum, and so returns to its anterior termination. In some cases the muscular sense is extinct, and the patient feels the limb as a foreign body, the weight of which is troublesome and makes itself felt in the unaffected part of the thorax. We have, however, not always monoplegia of the whole limb, frequently of a segment only, hand, forearm, foot or leg; in these cases the limit of anæsthesia always preserves its circular form, perpendicular to the axis of the limb; but instead of being localised at the root of the limb, this limit of anæsthesia is only found at the level of the joints, the movements of which are abolished by the paralysis, and surpass it by about two or three fingers' breadth; thus, *e.g.*, in a case of hysterical paralysis of the hand, we see the anæsthesia occupying the whole hand and terminating in a circular line perpendicular to the axis of the limb, and situated about five or six centimetres above the wrist. This character of hysterical paralysis is of great importance, and may by itself allow of differential diagnosis from cases of organic paralysis, and notably from cases of paralysis of peripheral origin (lesion of nerves or of plexuses); the limit of the latter, indeed, only to speak of anæsthesia, never presents itself under a circular line. On the contrary, the form of the insensible portion is very irregular, and the zones of insensibility alternate with those in which sensibility is preserved. This apparent irregularity, however, is strictly regulated by the distribution of the peripheral nerves, for they preside over the disposition of the zones of anæsthesia and of sensibility, according to the extent of the lesion by which they have been affected. It is necessary to add that anæsthesia, although extremely frequent in hysterical paralysis, may in some cases be absent, and that we cannot consider it an absolutely constant symptom.

In the different forms of flaccid paralysis the limb presents quite a different aspect; the *arm* hangs down motionless, its position being determined by gravity; it seems as if the hand was drawn down by a heavy weight, whilst at the same time the shoulder is flattened. Spontaneous movements no longer exist, and the

arm is like a foreign body over which the will has no influence, and if lifted it falls down at once. In the case of *crural monoplegia* the patient lies on his bed unable to make any movement with the affected leg; walking without support is impossible, and if the patient walks on crutches the leg hangs down without motion, and is dragged along behind: it follows, so to say, the pelvis to which it is attached, and scrapes over the ground, now with the point, now with the external border of the foot. Hemiplegia is only the combination of brachial and crural monoplegia. It is necessary to add that in hysteria pure monoplegia is very rare; most frequently if a limb is paralysed, the other limb on the same side shows a certain loss of power; sometimes, however, this loss is perceptible on special examination only, and if this is done carefully, the fact may be observed very frequently. Speaking of hemiplegia, we have to remark that the face is never paralysed. Hemiplegia is confined to the limbs without extending to the face. The authors of this article have, up to the present time, never found a single case of flaccid paralysis of the face. We shall have later on an opportunity of mentioning that when in hysterical hemiplegia the face and tongue show deviations, this is due to the presence of *glosso-labial hemi-spasm*. The mode of commencement of paralysis is extremely variable; sometimes slowly progressive, it may in other cases be sudden and sometimes even apoplectic. As to trophic derangements in the course of hysteria, we shall see further on that *muscular atrophy* is not at all rare in paralysis, and that it may reach such a degree as to be scarcely in accordance with the idea of a simple neurosis; sometimes also the paralysed limb becomes bluish and puffed—the *blue cedema* of hysterical patients.

The motor derangements in hysteria do not always bear the character of flaccid paralysis, but often present themselves under the form of *spasms* and *contractures*. Among the latter, the most frequent are those of the hand and foot (flexion upon the thumb for the former, club-foot of various forms for the latter); the limbs keep their position in almost complete rigidity for months and years without any change. What we have said on the disposition of anæsthesia in flaccid paralysis applies equally to paralysis with contracture. The tendon reflexes may be found normal, exaggerated or diminished. Together with the *spontaneous contractures* we have to treat of *artificial contractures*. In most hysterical patients, if we act strongly upon the muscular mass of the

limbs, either by a series of shocks, or still better by constriction (e.g., with an Es-march bandage), we see the segment below the constriction become stiff, or if the action is sufficiently long, remain in contracture (this muscular rigidity disappears under massage). This phenomenon is characteristic of a *diathesis of contracture*. One of the most important characters of hysterical contractures is that they disappear under chloroform, to reappear immediately on the return of consciousness.

We have now to study the *spasms* which are so frequent in hysteria; but as they show themselves especially in muscles connected with the splanchnic nerves, we shall combine the study of these spasms with that of the derangements of the different organs. We have only to treat here of *glosso-labial hemi-spasm*. Patients presenting this phenomenon seem at first sight to have hemiplegia of the inferior facial, one of the labial commissures is wasted and drawn, the tongue deviates. If we examine carefully the characters of this deviation of the face, we find that there is not paralysis but spasm of these muscles; in fact, not only does the tongue deviate, but also the half situated on the side of the deviation forms a convex line, so as to make it thicker and shorter than that on the opposite side. This proves that it is not paralysis but spasm of this half of the tongue which causes the deviation of the organ; besides, this deviation is infinitely more marked than that due to paralysis. The commissure which deviates is the seat of slight undulations, which are not found in facial hemiplegia of central origin. Lastly, if we tell the patient to blow, we find that no air comes from the deviated half, but only from the healthy side, exactly the contrary to what we observe in facial paralysis; for in the latter the paralysed half of the lips not being more than an inert membranous veil, air escapes immediately through this half on the slightest attempt to blow or to whistle. In glosso-labial hemi-spasm, on the contrary, the lips are, in consequence of the spasm, pressed firmly together on the affected half, and the air unable to pass through on this side, escapes on the healthy side. Among the motor derangements we have also to mention the *muscular tremors* so frequent in hysterical individuals, especially in the neighbourhood of the affected parts, mostly the limbs. They are not different from similar undulations observed in many neuropathic conditions. *Tremor* is equally frequent, in some cases scarcely perceptible, in others violent and more or less localised or generalised; it is almost always a very fine tremor with rapid

oscillations, but may simulate every kind of tremor.

Hysterical Chorea has been recognised for long and made the subject of a great number of special articles; to it are attributed the great saltatory epidemics of the Middle Ages (dancing epidemics of St. Guy; *Chorea Germanorum*), and it is quite different from chorea minor or chorea of Sydenham. The character which distinguishes it from other choreiform movements is, that in hysterical chorea we have constant repetition of one and the same movement with great regularity in form and time, from which the term of rhythmic chorea has been derived; hysterical chorea has received several epithets according to the nature of the movement produced; saltatory, natatory, malleatory chorea, &c.

Another motor derangement which may be observed in hysteria is *astasia and abasia*; this derangement consists in the inability of the patient to stand upright (astasia) or to walk (abasia), although the muscular strength is not diminished, and if the patient sits, he is able to move his legs quite co-ordinately. We have here the peculiar phenomenon, that the patient has unlearned to walk.

It remains now to study the principal phenomena of hysteria which may present themselves in regard to the viscera.

Respiration. — Accidental or paroxysmal *dyspnoea* is very frequent and is connected with the emotions; it may, however, occur without any apparent exciting cause. The medical man must also be well acquainted with hysterical *cough*, for it has often been erroneously diagnosed as pulmonary phthisis, and in individuals not at all tuberculous. It is a dry cough and sometimes isolated. It is most frequently capricious, and may be so violent, that without seeing the patient, but hearing him from a distance, we are able to make the diagnosis of hysterical cough. *Sneezing* is less frequent, but may occur; we ourselves have seen cases in which we counted several thousand sneezes in one day. The same holds good of *yawning*. *Hiccough* is also a phenomenon, which, through its persistency, its repetition and loudness becomes troublesome to the patient, prevents sleep, and may disturb all social life; it has been known to last for days and even for weeks. Derangements of *phonation* are frequent and independently of the "cracked voice" described by Brissaud as occurring in the course of different neuropathic conditions, a number of other derangements present themselves, as e.g., barking, which may vary according to the individual; this is,

properly speaking, nothing but a particularly violent, loud cough; sometimes the sound produced is very similar to the barking of a dog, and sometimes similar to the sound of the voice of another animal: an interesting variety is that in which laryngeal noises come on in the form of cries with always the same rhythm, so that we may be able to demonstrate them graphically. In some hysterical patients we find such complete *aphonia*, that they are unable to utter any sound. With such cases we have to connect those of *hysterical mutism*, although they are not absolutely identical phenomena; this mutism must be carefully kept apart from organic aphasia. Although the hysterically mute patient has the integral execution of ordinary movements of tongue and lips preserved and may easily move them in all directions, it is impossible for him to articulate a word with a low voice or when told to *whisper*. Such a patient is, even in spite of the greatest attention, unable to imitate movements of articulation made before him, and it is equally impossible for him to utter a single sound; he is aphonic and mute at the same time; but contrary to what takes place in ordinary aphasia, this mute patient has not lost anything of the intelligence and faculties acquired by education; he is able to write quite as well as before his mutism, and thus he may be in communication, not without great volubility, with those around him. Such patients have also completely preserved mimicry of face and gestures.

Digestive Apparatus.—One of the principal hysterical derangements of the digestive apparatus is *dsyphagia*, which may be temporary, in which case the patient feels in the throat, shortly before the attack, a "globus" which causes a sense of uneasiness or choking; or dysphagia may be permanent, and may then be accompanied by a sensation of deep internal constriction with or without a sense of warmth or even of burning heat. Dysphagia may be total or only partial, and in the latter case a very *bizarre* effect is produced: one kind of food can and another cannot be swallowed, whilst it is impossible to account for this phenomenon. Besides dysphagia through spasm of the muscles of deglutition or of the oesophagus we find *hysterical anorexia*. Properly speaking, this singular affection has nothing in common with dysphagia, because there is no mechanical obstacle preventing the passage of food into the stomach, its remaining there or being digested afterwards, but the patients do not eat because they have no relish for

food; often patients are strongly impressed with the fear of obesity. We have here a singular mental disorder; the patient has lost all appetite and the mere idea of eating causes pain. We wait for weeks and months in the hope of seeing the desire for food return. The appeals of the parents and even violence have no effect upon this resistance, which is more passive than active, the morsels of food, which we succeed in forcing on the patients, are just sufficient to sustain life; the patients consequently become frightfully emaciated, and are soon nothing more than living skeletons; and what a life it is they live! Cerebral torpor has succeeded to the agitation which marked the commencement. Walking and standing upright have become impossible, and the patient is confined to his bed, scarcely able to move; the muscles of the neck are paralysed, the head rolls like an inert mass on the pillow, the extremities are cold and cyanotic, the lower ones are often oedematous—life is nothing more than a breath, and in four cases one of us has seen death ensue. The only rational treatment is absolute isolation. All cases of hysterical anorexia are, however, not so severe; in some, anorexia is not complete, and the patients take secretly a little of their favourite dishes; other patients, seeing themselves becoming thin and ugly, become so alarmed that the anorexia subsides without any treatment. It is here the place to remark that among the professional fasting men and women, who have been so much talked about of late, some were certainly hysterical, and probably they were in a condition analogous to hysterical anorexia.

Among other disorders of the digestive apparatus we have to mention *vomiting*, which may be of extreme intensity and duration; probably a certain number of cases of vomiting in pregnancy may be attributed to the hysterical diathesis.

Eruclations also occur in some patients with such violence and frequency as to make them unbearable; they are much like the hiccough described above. These eruclations are in some cases the cause of unconscious deglutition of air. With this excessive production of air escaping upwards from the upper alimentary canal we have to connect the interminable *borborygmi*, so frequently heard in hysterical and other neuropathic patients, and the *tympanites* which may be so considerable as to cause errors in diagnosis (abdominal tumour, ascites, pregnancy). Sometimes it comes on in a few hours, sometimes more slowly; and it disappears in the same manner.

Urinary Apparatus.—As we shall have to study the secretory disorders further on, we shall here mention the phenomena of excretion only (dysuria, retention, incontinence), which may be so prominent as to call for special attention.

Reproductive Apparatus.—Here we only mention the very frequent irregularities of *menstruation* (amenorrhœa, dysmenorrhœa, metrorrhagia, &c.). The spasmodic element so often observed in the course of hysteria, presents itself under the form of *vaginismus*; but we are unable to affirm, as some physicians do, that *vaginismus* is always hysterical; on the contrary, it seems to develop in the course of various neuropathic conditions. As to sexual life, we protest against the opinion universally adopted by the public that all hysterical women have a tendency to lubricity, almost bordering on nymphomania. Far from this; our opinion founded on the observation of numerous hysterical women in the Salpêtrière is, that hysterical women are less sexual than sane and normal individuals; we even may add that hysterical patients with total anæsthesia show absolute indifference to intercourse. Hysterical men as well as women often form love-plots and write amatory letters, but as regards the act itself they do not show the sensuality generally attributed to them; some are affected with spermatorrhœa, which is closely allied to impotence.

Circulation.—Among the derangements some belong to the class of vaso-motor innervation, and others, the mechanism of which is not so clear, although it seems analogous to the former, consist of *hæmorrhage* of different organs, and may often be *secondary*. Among the principal we have to mention metrorrhagia, hæmoptysis, epistaxis, melæna, and more rarely bloody sweat and tears, &c. Among the disorders of innervation we may first mention the more common ones—*palpitation*, alternation of *pale*ness and *red*ness, *persistent sense of cold*, and *sensitiveness to cold*; some patients present more or less permanent *rapidity of pulse*; often also we may observe symptoms of *local asphyxia of the extremities*, and as a phenomenon similar to the latter and often combined with it, *angina pectoris*. This angina in hysterical patients deserves special mention on account of some special characters which distinguish it from organic angina; the former are much more frequent than the latter; they are often periodical and more induced under the influence of emotions than of fatigue; they are of longer duration, and lastly they are generally

combined with symmetrical asphyxia of the extremities; this form has, therefore, been called *vaso-motor angina pectoris*. To vaso-motor derangements, also, the fact has been attributed that in hysterical patients the anæsthetic side offers greater *resistance* to the passage of the electric current than is the case in a normal individual; this difference tends to prove that there exists in the anæsthetic parts spasm of the vessels and lessened circulation; this view is supported by the fact, established beyond doubt, that in the anæsthetic parts pricks with a pin do not bleed, or bleed much less than on the healthy side. Lastly, hysterical fever, which some authors deny, has in some cases been observed in an incontestable manner; it may be accompanied by a great increase of temperature, 103° Fahr. Instead of spasms of the vessels of the skin, we may in some hysterical patients observe vaso-motor paralysis, especially in cases of "autographic skin" (*peau autographique*), in which, if we make with a blunt body as a finger-nail or a pencil a few series of impressions or a drawing, we see them soon appear intensely red in colour, wheals are formed on this spot, and we find completely the aspect of *artificial urticaria*.

Secretions.—Among the disorders of the secretion we mention *sialorrhœa*, *galactorrhœa*, *chromidrosis* (secretion of a yellowish sebaceous mass on the eyelids), and *polyuria*, which may be present to a considerable degree. The most remarkable, however, and in all cases the most minutely observed symptom, is *anuria*. This anuria may be almost complete, or may be not much more than *oliguria*; when in a hysterical patient the quantity of urine becomes notably diminished, we generally find that *vomiting* supervenes, and examinations made by one of us have shown that the mass vomited contains a considerable quantity of urea or of carbonate of ammonia; instead of vomiting we might find *secondary diarrhoea*. The patients bear this anuria or oliguria perfectly well; the two phenomena do not produce any painful symptoms, and do not terminate in death, as would be the case were organic anuria present to the same extent.

Trophic derangements may show themselves in the course of hysteria in local or general symptoms; among the former we may mention *blister-like eruptions*, which are perhaps even zosteriform and may be directly produced by suggestion; *spontaneous falling off of the nails*, and that singular phenomenon which recently has been described by one

of us under the name of *blue œdema*, which so frequently accompanies the contractures and paralysis of hysteria; the extremities (hand, foot) attacked by the contractures, become puffed; pressure with the finger leaves behind the characteristic cup-shaped impression; the skin on the affected part is stretched and glossy, and is of a violet-red colour, whence the name of "blue œdema;" the temperature of such patients is very low. From a clinical point of view, the local trophic derangement, most interesting on account of its frequency as well as the errors it has caused, is the *muscular atrophy* which attacks the paralysed limbs; it may appear very early, and to such a degree that one may imagine amyotrophy, of spinal or peripheral origin. When the paralysis attacks a child, the muscular atrophy may be accompanied by an arrest of development of the whole limb, including the bones, and it is long after recovery before the limb regains its normal dimensions. The electrical reaction of these muscles is in general not perceptibly altered. Another trophic phenomenon found in certain cases of long-continued hysterical paralysis and contracture is the presence of fibrous retractions in the joints affected; they may persist after the motor derangements which caused them have disappeared, and sometimes render surgical operations necessary in order to restore the joint to its normal function.

Lastly, **general nutrition** may in hysteria present singular symptoms, which recently have been studied by Gilles de la Tourette and Cathelineau. In the intervals of the attacks the hysterical patient has a normal nutrition absolutely analogous to healthy individuals of the same weight under the same *régime*. During the attack, however, there is a diminution of all the excreta, *but the quantity of the phosphates being in inverse ratio, viz., the earthy phosphates, which in the normal state are present in the proportion of 1 to 3 of other salts, assume during the attack the proportion of nearly 1 to 1.* In epilepsy, on the other hand, an increase of all urinary excreta was observed after the attack, without inversion of quantity. In the same manner we find in attacks of *hysterical sleep*, when alimentation is completely or almost suspended, that the excreta, which had been greatly diminished during the whole condition of sleep, become gradually normal in the two or three days previous to awakening. The permanent phenomena of hysteria in the intervals of the attack, and of the condi-

tion of *mal hystérique*, do not influence in any way the general nutrition. This holds good for both sexes.

Mental Disorders.—It is impossible to study in detail the different mental disorders which may occur in the course of hysteria; they will be treated of under the different mental affections particularised. We mention, however, the *attacks of sleep*, in which the patient presents almost all the objective symptoms of actual sleep, and which last for days and even weeks. But to a certain extent there seems to be an appreciable degree of consciousness; thus the patients eat and drink during this long period of sleep, whenever food is brought near to their lips, and some show a liking for some food in preference to others. Another phenomenon of almost the same kind as the attacks of sleep, but of a quite different clinical order, is the *ambulatory automatism*. In this condition we see the patient lose quite suddenly the consciousness of his personality, and nevertheless continue to accomplish all the actions of life, as though nothing extraordinary had happened. He will go to and fro, takes a railway-ticket, go into a *restaurant*, and have a breakfast served to him, for which he pays exactly, but all these actions have no sort of connection with his daily occupation. Then this condition disappears suddenly, and the patient returns to the normal condition, astonished to find himself where he is, and not knowing how he got there; he is also ignorant of the actions he has accomplished during this singular eclipse of consciousness. It is probably a sort of somnambulism, but different from that generally observed; in this category must be classed all the cases of "double consciousness" and "second state," reported by authors.

Speaking of hysterical mental derangements, we ought also to treat of the *moral and legal responsibility* of the patients, but this will be done in detail in other articles of this Dictionary. We must, however, insist on one point: most authors mention as peculiar to hysteria a certain mental condition — excessive psychical re-action, desire to do something remarkable, love of everything brilliant and extraordinary, a tendency to lying, exaggeration and even simulation, absence of will, irritability, and frequently more or less absolute loss of moral sense. All these mental deviations are doubtless frequently observed in hysteria, but one cannot say that they are special symptoms of this disease; they must simply be associated as symptoms of mental degeneration, which, it is true,

lies in most cases at the bottom of hysteria. We always must remember that hysterical patients are hysterical because they are mentally degenerated, and that they do not present symptoms of this disease; they must simply be considered as symptoms of mental degeneration, because they are hysterical. Besides, the symptoms of such degeneration are very variable, and far from being alike as regards quality and intensity in all patients.

We have in the course of this article employed the word patient indiscriminately, to indicate that sex does not make any difference in hysteria, and that the symptoms described may occur in the male as well as female. From a mental point of view, however, we must devote a few lines to *hysteria of the male sex*, which apply especially to cases of hysterotraumatism. Nearly all the hysterical men of the working classes met with in the hospitals are in a melancholy condition, and in addition to this they have a tendency to frightful dreams (wolves, lions, fantastical and terrible animals) even without any alcoholic intoxication. This mental condition differs strangely from the brilliant and sparkling condition of mind, which the exclusive study of hysteria in the female has accustomed us generally to consider as a speciality of individuals affected with this *grande neurosis*.

Diagnosis.—Our limits oblige us to confine ourselves to the most important disease with which hysteria when it assumes the form of hysterot-epilepsy, may be confounded—*ordinary epilepsy*.

Epilepsy.

It appears generally during the first fifteen years of life, and generally the patients have had convulsions in their childhood.

The attack commences suddenly; the patient is thrown to the ground without being able to help it; consequently we find many scars in the faces of old epileptics.

We often hear a special cry at the commencement of the attack.

During the attack the patient does not struggle, or but little; it is not necessary to hold the patient down in bed, as the movements are very restricted.

Hysteria.

It appears generally at puberty, or during the first years of adult life. It is not preceded by convulsions in childhood.

The attack is preceded by a prodromic stage, by an *aura*, which allows the patient to take the necessary precautions, therefore scars on the faces of hysterical individuals are rare.

No cry, or a very feeble one.

The patient struggles with such violence that two or three persons are necessary to hold him down in bed; his movements extend to great resistance.

Epilepsy.

The patient does not speak, he only sighs or groans.

Frequently involuntary micturition or defecation.

Attacks generally rare, and without any appreciable cause; if they are frequent there is a condition of illness (*état de mal*) with serious symptoms and rise of temperature.

Intellectual weakening is often observed, and increases with the number of attacks.

Absence of distinct marks (*stigmata*) of hysteria. In some cases, however, after the convulsive attacks, narrowing of the visual field may be observed, but this is transitory.

Bromides have manifestly a therapeutic action.

Hysteria.

Frequently the patient utters exclamations or intelligible words; often even actual phrases.

Never, or almost never, involuntary evacuation.

Attacks may be frequent without the health of the patient suffering in any appreciable manner, and without rise of temperature.

No intellectual weakening.

Presence of distinct marks (*stigmata*) of hysteria; narrowing of the visual field, when it exists, is permanent.

Bromides have, so to say, no action, or at least it is much less manifest than in epilepsy.

Such are the principal differences which from a clinical point of view we have to keep in mind in order to distinguish true epilepsy from hysterot-epilepsy.

Is it necessary, as some authors wish, to distinguish from hysteria the morbid phenomena of the nervous system consequent on traumatism? In one word, is it necessary to consider the *traumatic neurosis* of some German authors as an affection distinct from hysteria, for which to make a special differential diagnosis? We absolutely reject this view, because *the pretended "traumatic neurosis" does not exist as a morbid entity*. For us, and we have already explained ourselves when speaking of ætiology, the symptoms developed in consequence of traumatism belong either to hysteria or to neurasthenia. Sometimes these two varieties of nervous disorder coincide, and we then have not such a pure clinical aspect as when we have hysteria alone; but this mixture of hysterical and neurasthenic symptoms in one and the same subject is not extraordinary, because we find in all branches of pathology such morbid combinations.

To resume—and everybody agrees on the facts themselves—in consequence of traumatism, we may observe in one individual, narrowing of the visual field, paralysis, or contracture with special

symptoms, and alterations of sensibility and of localisation of anæsthesia; different marks of hysteria, as micropsy and monocular polyopia; the hysterogenic zones, glosso-labial hemi-spasm, &c.; frequently even convulsive attacks identical with those of genuine hysteria. In one word, we may see the complete clinical picture of hysteria. Why then should this *ensemble* of phenomena receive another name than that due to it—hysteria? As we said at the commencement of this article, we know hysteria only by its symptoms, but these are quite fixed; and if we find them, we may resolutely affirm that we have a case of hysteria, and nothing else. Inasmuch as "traumatic neurosis" does not exist as an isolated condition, it is not necessary to describe its diagnosis.

Treatment.—Several points have to be considered: the general treatment of hysteria, the treatment of the convulsive attack, and the treatment of the local symptoms of hysteria.

A. *General Treatment of Hysteria.*—

(a) *Medicines* are usually of very little value; bromides are far from rendering the same service in hysteria as in epilepsy. We must, however, most carefully avoid making use of morphia in any form whatever, because no one is more apt to become a morphino-maniac than a hysterical individual. *Valerian* (tincture, extract, valerianate of ammonia) and other similar anti-spasmodics may be employed, which at least have no injurious effect on the patient. It must be kept in mind that a great number of hysterical patients are at the same time more or less anæmic, and therefore iron and arsenic may, as a general rule, be prescribed.

(β) *Hydro-therapeutics.*—We much prefer *douches* to more or less prolonged baths. The *douche* must be as much as possible of constant flow, or interrupted and of a certain force; rain-*douches* ought rarely or never to be used. The temperature should be 50 F., but at the commencement it should be less in order to make it more tolerable for the patient. Lastly, the *douche* must as little as possible be directed on the head, but on the limbs and lower part of the trunk. Instead of *douches*, wet packing, cold ablutions, or river bathing may be prescribed. Some watering-places, as Nérès, Divonne, &c., enjoy a well-deserved reputation.

(γ) *Electricity* has a very good effect if applied in the *static* form (isolating stool, electric sparks, electric wind); other forms may be equally applied.

(δ) *Massage* may be applied as dry massage all over the body except to the

hysterogenic points. It may be replaced or followed by *frictions* with a woollen glove on which some aromatic tincture has been poured.

(ε) *Mode of Living.*—The patient must be recommended to avoid all excitements, to take moderate exercise, and not to infringe the laws of hygiene in the choice of food. We do not think it necessary, except in cases of anorexia and of insuppressible vomiting, to prescribe a special diet. Some physicians employ occasionally in hysteria the treatment advocated by Weir Mitchell in neurasthenia (cure of Weir Mitchell or Playfair), which consists in the simultaneous employment of isolation, rest, massage, faradic electricity, special diet (100 grammes of milk every two hours), and of preparations of iron.

(ζ) *Moral treatment*, if well conducted, may have enormous influence on the education of young hysterical individuals, as well as on the development of the different symptoms; hysterical individuals want leading with a firm hand, but without harshness. They should not have too much compassion, and should not be left to themselves and contemplation of their sufferings. For this reason, isolation, which has always been advocated by one of us, is a powerful means for treating most of the hysterical symptoms; but to carry this out efficiently the patient must be completely separated from his family.

(η) *Hypnotism* may be of some service, but not so much as one might *à priori* expect; it may be employed against some local symptoms. Although it may be true that in hysteria as such hypnotism prudently applied has not any injurious effects, it is quite certain that in the majority of cases the inconsiderate use or abuse of hypnotism has been followed by very serious complications. *Suggestion* may be employed without hypnotism, and may be quite as effective as in hypnotic sleep.

B. *Treatment of the Attack.*—To prevent the attack from breaking out or to make it cease in its course, we possess physical means as well as medicines which prove useful.

(a) *Mechanical means* are compression of the ovary, either by a special compressor or in a more simple way, with the hand. This compression may completely prevent or arrest the attack, but generally not in a definite form, and when the compression ceases, convulsions soon appear again. *Compression of the neck* (throat), or *compression of a superficial nerve of sensation* (sub-orbital nerve, *Ruault*), has been advocated, and it is true that in some cases this means may succeed. Some-

times application of *alternating electric currents* may bring about the desired result.

(β) *Medicines*. — *Chloroform* and *sulphuric ether* generally arrest the attack easily, but must be most prudently applied, because the patients soon get so accustomed to them that afterwards they cannot do without; the same applies to *chloral*. Neither is the administration of *nitrate of amyl* or even of *ethyl-bromide* without danger.

C. *Treatment of the Local Symptoms*. — It is impossible to go into the detail of the treatment of the different phenomena of hysteria. Most of the methods enumerated above are applicable, and it must be kept in mind that the general treatment of hysteria must always be employed, because in suppressing the disease we also arrest the symptoms. There are, however, certain local means which may be applied in some cases of paralysis and of contracture of the limbs; besides massage and electricity, we mention the *transfert*, which may be brought about by means of a strong horseshoe magnet, the poles of which are placed in the neighbourhood of the affected part. Under the influence of this magnet we see, if not in the first *séance*, but very soon, sensibility and movement return gradually to the paralysed or contracted limb, whilst at the same time the limb on the other side presents anæsthesia, paralysis, or contracture, which left the limb to which the magnet was applied. This is not an actual recovery, because the paralysis and contracture have only changed sides, but this transfer has the immense advantage of making the affection against which the magnet has been applied movable. By thus allowing the limb to move we prevent muscular atrophy and fibrous peri-articular contraction. The prolonged employment of this method makes the paralysis or contracture gradually disappear in consequence of the successive changes from one side to the other. J. M. CHARCOT.

PIERRE MARIE.

[References.—De l'hystéro-épilepsie, Leçons sur les maladies du Système nerveux faites à la Salpêtrière, par J. M. Charcot, recueillies et publiées, par Bourneville, Tome premier, Treizième Leçon. Paul Richer, Le Grand Hystérie, Iconographie de la Salpêtrière. Études Cliniques sur la grande hystérie ou hystero-Epilepsie, par Dr. Paul Richer, préface par M. Charcot. Les Démoniaques dans l'art, par M. Charcot et M. Paul Richer.]

HYSTERIA CATALEPTICA (ὕστερα; καταλαμβάνω, I seize or attack). A synonym of Catalepsy.

HYSTERIA EPILEPTIFORM (ὕστερα; ἐπιλαμβάνω, I seize upon). A synonym of Hystero-epilepsy.

HYSTERIA MAJOR (ὕστερα; major, greater). A name given by Charcot to hystero-epilepsy. (Fr. *hystérie majeure*.)

HYSTERIA MINOR (ὕστερα; minor, less). A name given by Charcot to the mildest form of hysterical convulsions, accompanied by loss of consciousness.

HYSTERIA VAGA (ὕστερα; vagus, wandering). A synonym of Hysteria.

HYSTERIC AURA (ὕστερα; aura, a breeze or sensation). (See Hysteria.)

HYSTERIC GLOBE (ὕστερα; globus). (See GLOBUS HYSTERICUS.)

HYSTERIC INSANITY (ὕστερα; in; sanus). (See MANIA, HYSTERICAL.)

HYSTERIC NAIL. (See CLAVUS HYSTERICUS.)

HYSTERIC PASSION (ὕστερα; patior, I suffer). A synonym of Hysteria.

HYSTERIC SPASM (ὕστερα; σπασμός, a convulsion). (See Hysteria.)

HYSTERIC ANÆSTHESIA (ὕστερα; ἀ, neg.; αἴσθησις, perception by the senses). (See Hysteria.)

HYSTERIC ANURIA (ὕστερα; ἀν, neg.; οὔρον, urine). Suppression of urine in a hysterical subject without other definite cause. A rare condition, probably due to spasm of the renal vessels. Considerable diminution of the urine is always attended with vomiting, the vomit containing some urea. The absence of toxic symptoms is attributed to the fact that in this condition little if any food is assimilated, and that the tissue changes are extremely modified (Charcot). (See Hysteria.)

HYSTERIC APHASIA. (See APHASIA, FUNCTIONAL.)

HYSTERIC APHONIA. (See APHONEIA, HYSTERICAL.)

HYSTERIC BLINDNESS. — A functional defect of vision, usually unilateral. The fundus is normal, and the pupil acts well to light, but there may be complete loss of sight or reduction of the field of vision in a variable degree. The onset is usually sudden, coming on after a hysteroid convulsion, and is as a rule transient, passing away after a few weeks (Gowers). (See Hysteria.)

HYSTERIC CHOREA. (See CHOREA, HYSTERICAL; CHOREA MAJOR; Hysteria, &c.)

HYSTERIC FITS. — The paroxysmal convulsive attacks which occur in many persons suffering from hysteria. The seizure may vary in its severity from a merely emotional outburst of crying or sobbing with laughter, to violent attacks of shouting and screaming with irregular convulsive movements of the limbs, semi-unconsciousness, or a varying amount of sense-hallucinations. Attacks more vio-

lent even than these and simulating epileptic seizures are spoken of as hysteropsychotic seizures (*q.v.*).

HYSTERICAL HEMIANÆSTHESIA (*ὑστέρα; ἡμισυς*, half; *ἀναίσθησία*, want of feeling). (See HEMIANÆSTHESIA, HYSTERICAL.)

HYSTERICAL MACROPSY. (See MACROPSY, HYSTERICAL.)

HYSTERICAL MANIA. (See MANIA, HYSTERICAL.)

HYSTERICAL MICROPSY. (See MICROPSY, HYSTERICAL.)

HYSTERICAL OPISTHOTONOS (*ὑστέρα; ὀπισθότονος*, bent backwards; from *ὀπισθε*, *τείνω*). (See HYSTERO-EPILEPSY, p. 627.)

HYSTERICAL PALPITATION (*ὑστέρα; palpito*, I beat or throb). Increased frequency in the heart's action occurring in the hysterical without any detectable cardiac lesion. It is frequently extremely distressing, pain, giddiness, dyspnoea, and faintness being the concurrent symptoms. Gowers has noticed not only frequency of the beats per minute, but also a reversal of the usual effect of posture on the pulse. (See HYSTERIA.)

HYSTERICAL POLYOPIA (*ὑστέρα; πολύς*, many; *ὄψις*, eyesight). Diplopia or trippia, generally monocular, occurring in a hysterical subject; due to the segmentary structure of the crystalline lens, the images which are ordinarily ignored in health being conscious to the retina in hysteria. It also occurs in aged persons in commencing cataract, and in certain cases of astigmatism, congenital or due to keratitis (Charcot).

HYSTERICAL PYREXIA. (See PYREXIA, HYSTERICAL.)

HYSTERICAL TETANOID CONVULSIONS (*ὑστέρα; τέτανος*, a state of tension; *convello*, I tear). (See HYSTERO-EPILEPSY.)

HYSTERICAL TREMOR (*ὑστέρα; tremor*, a trembling). (See HYSTERIA; HYSTERICAL CHOREA, &c.)

HYSTERICAL TRISMUS (*ὑστέρα; τρισμός*, a gnashing of the teeth, from *τρίζω*, I rub). One form of spasmodic muscular contraction to which the hysterical are liable. There is spasm of all the muscles of mastication, the teeth not being separable by more than a quarter of an inch. It usually immediately succeeds a fit and persists until the next. (See HYSTERIA.)

HYSTERICISM (*ὑστέρα*). A name given to the mental and bodily condition which is observed in those prone to repeated attacks of hysteria. (Fr., *hystéricisme*.)

HYSTERICŒDEMA (*ὑστερικός*, hysterical; *οἴδημα*, a swelling). A hysterical swelling. (Fr., *hystéricœdème*.) (See TUMOURS, PHANTOM.)

HYSTERICIS.—The popular name for mild hysterical paroxysm.

HYSTERIENCEPHALITIS (*hysteria; encephalitis*, inflammation of the encephalon). Inflammation of the brain and its membranes said to supervene on repeated attacks of hysteria.

HYSTERO-CATALEPSY (*hysteria; κατάληψις*, a seizing). A name given to hysteria in which cataleptic phenomena occur. (Fr., *hystérocatalepsie*.)

HYSTERO-DEMONOPATHY (*hysteria; δαίμων*, an evil spirit; *πάθος*, suffering). Hysteria with ideas of possession by evil spirits. Dæmonomania in a hysterical person.

HYSTERO - EPILEPTOGENOUS POINTS (*hysteria; ἐπιληψία; γένω*, for *γεννάω*, I engender). Charcot's term for foci of hyperæsthesia (*q.v.*). (See HYSTERO-EPILEPSY, p. 627.)

HYSTEROGENIC ZONES (*hysteria; γεννάω*, I beget; *ζώνη*, a belt). A synonym of Foci of Hyperæsthesia. (Fr., *zones hystérogeniques*) (See HYSTERO-EPILEPSY, p. 627.)

HYSTEROID (*hysteria; εἶδος*, likeness to). Sir W. Roberts's name for hysteropsychosis.

HYSTERO-MANIA (*ὑστέρα*, the womb; *μανία*, madness). A synonym of Nymphomania. Also used for hysterical insanity. (Fr., *hystéromanie*; Ger., *Mutterwuth*.)

HYSTERO-NEUROSIS (*ὑστέρα; νεῦρον*, a nerve). Engelmann's term for the nervous disturbances of some organ or part of the body caused by irritation, supposed to proceed from the uterus—*e.g.*, hysteropsychosis, certain forms of headache, mental disturbance, &c.

HYSTEROPATHIA, HYSTEROPATHY. Synonyms of Hysteria.

HYSTEROPNIX (*hysteria; πνίξις*, suffocation). A synonym of Globus Hystericus.

HYSTERO-PSYCHOSIS (*ὑστέρα; ψυχή*, the mind). A mental disease or disorder connected with uterine symptoms.

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